Lappeenranta University of Technology
School of Business
International Marketing

BACHELOR'S THESIS

"Customer knowledge management in customer service, case Elomatic Oy"

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Anna Kunttu 0344231
Supervisor: Hanna Salojärvi

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1 INTRODUCTION

Competitive advantage has been previously achieved with product innovation and brand building, but in twenty-first century, organizations are more interactive, creating competitive advantage by gathering customer information. This new approach has been highly influenced by increasingly demanding customers, global competition, and slow-growth economies and industries. Customer knowledge is unrealized by researchers as competitive tool. Customer knowledge management (CKM) includes acquisition, management and exchange of customer knowledge inside an organization. (Garcia-Murillo & Annabi 2002, 875; Peppers & Rogers 2004, 4; Woodruff 1997, 139) Some of the identified challenges in business to business (B2B) industries include better understanding of customer needs and values as well as return on innovation as a source of growth. Customer knowledge can be used as a way to solve these challenges. The special features of customer-seller –relationships in B2B markets create an opportunity to acquire and utilize customer knowledge. (Kotler et al. 2009, 268)

Service industries are growing their importance and they accounted 63,2 % of Finnish Gross domestic product (GDP) in 2007, whereas in 1990 services were 59 % of GDP. The share of services in GDP is expected to grow and in 2009 it is estimated to be 69 %. Moreover, 68 % of employment was located in service industries. (Grönroos 2007, 2; Tilastokeskus 2011) B2B industries have been traditionally product-oriented, and the market changes, mentioned earlier, have forced organizations to search methods beyond traditional marketing mix. (Parasuraman 1998, 309) Service marketing requires different approach than product marketing. The more service- dominant a total offering is, the greater the divergence from traditional marketing. (Shostack 1977, 73; 75) Although customer service is recognized as a key factor to success, still its position is unclear; no explicit policy is applied and there are only a few measurements being used. Customer service is seen as a short term solution to a stagnating market in many cases and the long term commitment needed for establishing successful customer service policies is often lacking. Customer service as a strategic issue clearly is in a premature stage. (Wouters 2004, 586)

Some researchers see customer knowledge management (CKM) as a just another form of customer relationship management (CRM). Despite all the given attention, CRM does not exceed the data collection and management. Even though the importance of technology is deniable, technology cannot be employed in tacit customer knowledge due to its nature. CKM differs from CRM and knowledge management (KM), and is not just an alteration of those two. The information in CKM comes from external sources, not from databases inside the firm. (Davenport et al. 2001, 63-64; Desouza & Amazu 2005a, 113; Gibbert et al. 2002, 461; Kohlbacher 2008, 623-624) According to Garcia-Murillo and Annabi (2005) CKM helps organizations to plan and design their new offerings better to suit customer needs, increases to foresee competitive actions, and increases customer loyalty and cooperative benefits.

CKM has been studied in consumer context, but it has received less attention in B2B markets. Moreover, there is only a rear amount of research focusing on the link between CKM and quality of customer service. Consulting engineering organizations are different from other organizations in B2B service industry. These knowledge-based, highly technical organizations require high degree of customization and use often face-to-face interactions as a way to communicate with customers. (Morris 1992, 214) Characteristics of the case industry provide a possibility to study how CKM is practised in B2B context. The increased need for customer service is realized in Elomatic too, and the company sees customer service and good quality as a way to differentiate itself from competitors (Senior design manager 2011).

1.1 Research Objectives, Problems and Limitations

The objective of the thesis is to study what is the role of customer knowledge in improving the quality of customer service by studying the knowledge flows in the case company, Elomatic Oy. Moreover, the aim is to find out what types of knowledge these knowledge flows consist of, and are there perhaps barriers to block the flows. In addition, supportive tools and their role are discussed.

Research problem: What is the role of customer knowledge management in improving the quality of customer service in B2B markets between a customer and a seller?

Sub questions:

1. What is CKM?
2. What is a quality of a customer service?
3. How knowledge flows occur between a customer and a seller-employee?
4. What is the role of supportive systems in customer knowledge management?

This research focuses only on CKM in B2B context between a seller-employee and a customer. This includes the knowledge exchange occurring in a customer interface. The thesis is done from seller's point of view, and the customer service and its quality are discussed form the seller's perspective. However, the customer gap and how it is formed is done from the customer's point of view. In the chosen context relationships between a customer and a seller organization are longer and deeper compared to consumer markets. In addition, B2B companies tend to have fewer but bigger customers, and the established relationship is longer. In this research CKM is seen as a separate theory from CRM and KM. Both GAPS model and SERVQUAL model are presented in this research, although SERVQUAL is the service quality from customer's perspective and it has minor role, whereas GAPS model is mainly from service provider's perspective.

1.2 Research Methodology

Qualitative methodology is employed in this thesis, and the research is executed as a case study using semi-constructed interview questions. Qualitative methods usually focus on limited amount of cases that are studied and analyzed as thoroughly as possible, and this is called discretionary sample. From qualitative methods semi-constructed interviews are chosen. Semi-constructed interviews consist of questions that are laid before the interview, but they leave some space for free conversation if relevant topics are raised during the interview. Semi-constructed questions, that are open questions, are the same to each person interviewed. (Eskola & Suoranta 1998,

85-86) A case study includes one case or a few cases in their real life context, and they are selected and scores are derived from the cases are analyzed in a qualitative way (Dul & Hak 2008, 4). It is a research strategy focusing on understanding the dynamics that are present within single settings (Eisenhardt 1989, 534).

These qualitative methods provide a tool for studying the subject in question better than quantitative methods, because knowledge flows are hard to measure. Moreover, case study was chosen, because it gives a chance to focus on knowledge flows and their impact on service quality in this special case. Moreover, considering the length and deepness of the thesis this method works for the purposes of the research. Semi-constructed interviews will guide the conversation towards the subject, but still leaving some space for raising subjects relating to the subject.

1.3 Theoretical Framework

Theoretical framework is presented in Figure 1 and it outlines the research and its main focus is on interaction between B2B customer and seller-employee in customer interface. This interaction occurs in a service industry and knowledge (blue arrows) is gathered and shared in the interaction between two parties: a customer and a seller-employee. CKM includes knowledge to support the customer, about the customer and from the customer. Knowledge to support the customer is given to a customer by an organization, whereas knowledge from and about customer are given to organization by customer. The knowledge acquired in interaction between B2B seller-employee and a customer is stored by using supportive tools. On the other hand, acquired knowledge may stay in seller-employee's possession as a tacit knowledge. The red arrow describes that as result of gathering, storing and sharing customer knowledge, the quality of customer service can be improved.

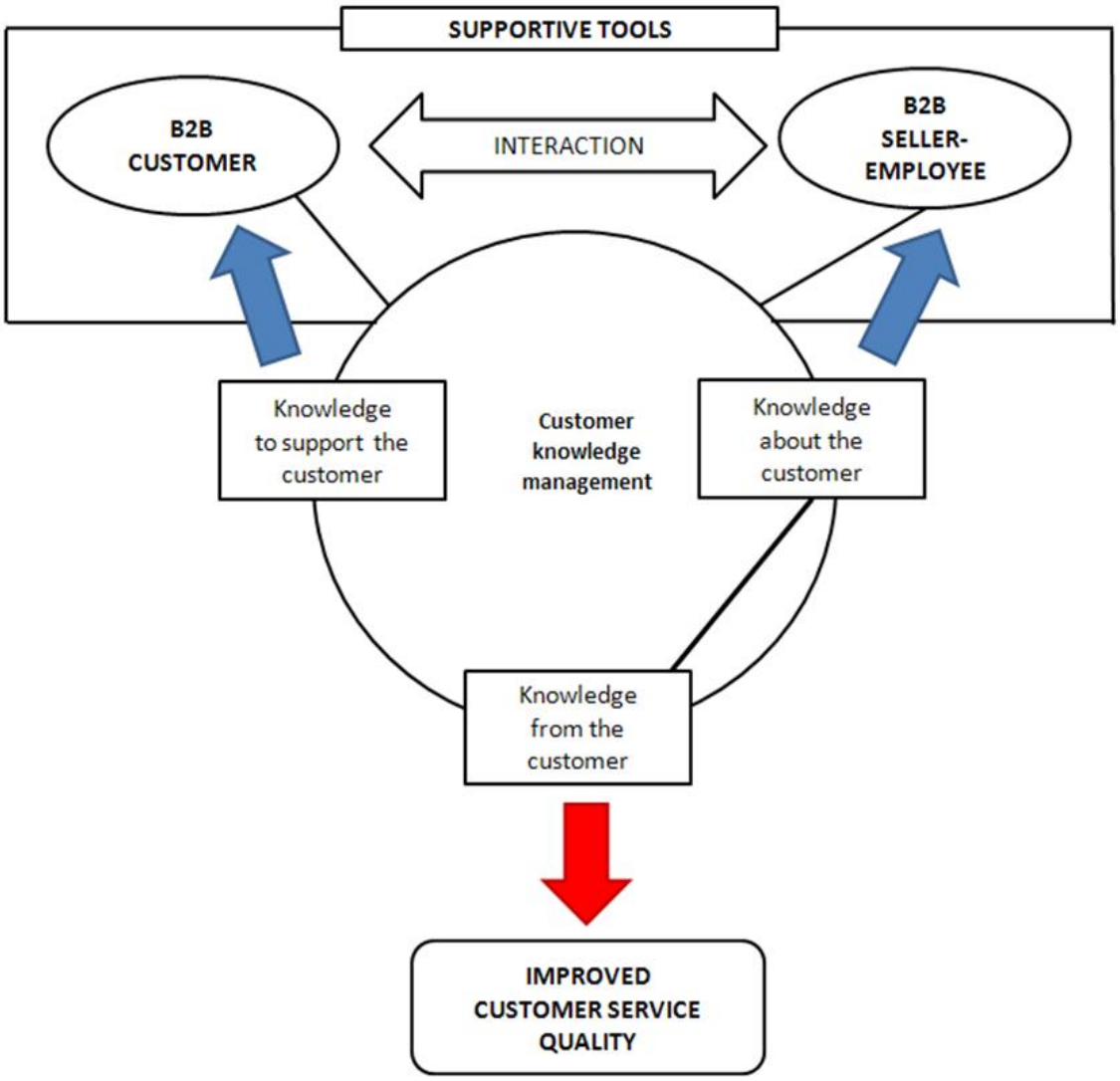

Figure 1: Theoretical framework (Adapted from Desouza & Awazu 2005a, 149)

1.4 Literature Review and Key Concepts

Customer knowledge has been realized as a way to build competitive advantage and it has gained attention of scholars, although CKM has been mainly studied in B2C markets. Gebert et al. (2003) created CKM model that balances KM and CRM approaches by studying literature and doing action research. The model consists of seven processes including campaign, lead, offer, contract, service and complaint management. It also takes into account interaction and channel management into above mentioned processes. Moreover, the model integrates knowledge aspects (competence, collaboration, content and composition) into CRM process. By combining the two theories, Gebert et al. (2003) overcame problems related to

system-orientation of CRM. Scholars present a case example about knowledge sharing in customer service centre (CCC). CKM model made it possible for CCC to overcome its system's weaknesses when used as an analytical tool

Desouza and Awazu (2005a) took a different approach in their CKM model focusing only on the type of customer knowledge: knowledge about, for and from customers. Although both of these models agree that there are three types of customer knowledge in CKM. Kohlbacher (2008, 625) introduces Desouza's and Awazu's model of CKM in his paper, and he sees that the knowledge-based marketing process introduced by him can be seen as part of CKM. Unlike these two models, in which CKM is a separate from CRM, according to Salomann et al. (2005, 394) CKM is a process inside CRM. Salomann et al. (2005) creates process map for CRM, where CKM forms closed knowledge loop within the performance management. Salomann et al. (2005) combines wide-spread survey and multiple-case study approach in their research, and as a result they create knowledge-based CRM as a managerial framework. Kohlbacher (2008) also sees CKM as a part of a process, but he creates knowledge-based marketing process, where CKM is the connecting link between marketing, and stakeholders that include suppliers, customers and competitors, and other partners.

More recent studies include Homburg et al. (2009, 64) who introduced the concept of customer need knowledge (CNK), that is the extent to which a frontline employee can accurately identify a given customer's hierarchy of needs. These scholars studied the CNK framework within German travel agencies belonging to one large travel organization by conducting interviews and questionnaires among managers, employees and customers. They found out that providing training for customer-oriented interaction behaviour enhances the positive relationship between customer orientation and CNK. Moreover, they found a strong evidence for an effect of cognitive empathy on CNK. On contradiction to their expectations, they found out that perspective-taking training, like role playing, does not "enhance" the effect of cognitive empathy. They also discovered that CNK increases with the length of the relationship and that high levels of CNK are associated with higher levels of customer satisfaction and willingness to pay. (Homburg et al. 2009, 69; 76-77)

Interaction process is created by IMP Group and Håkansson (1982, 17). Interaction process consists of individual episodes and relationship, and it is affected by the characteristics of interacting parties. Moreover, interaction process is part of interaction model that includes, on top of the process, atmosphere and environment. In their research they used questionnaire as well as interviews, and they conducted the study in five countries: Sweden, Italy, UK, Germany and France. They introduce all their company cases recognizing how the interaction process varies in each case. More recently, Holmund & Strandvik (1999) introduced a relationship framework that contains the interaction process, but also adds new components to it by studying literature. According to Holmund & Strandvik (1999) a single episode consist of actions, and a set of episodes form sequences that together form the whole relationship.

Zeithaml et al. (1988a, 36) introduced GAPS model that revealed the possible gaps that organizations need to cover in order to satisfy their customers better, and this was studied on B2C context. Gaps in the model are divided into a customer gap that consist of what the customer expects and what they actually get, and providers gaps that are the listening, the service design and standards, the service performance and the communication gap. This model was studied with direct research meaning that the scholars collected observations about managers and employees in service organizations. (Zeithaml et al. 1988a, 37; Zeithaml et al. 2009, 33) Later Parasuraman (1998) developed the GAPS model for B2B markets as a way for organizations to improve customer service. Organizations need to fulfill service gaps that are the only way to satisfy customers better. These gaps include market information, service standards, service performance and internal communication gap. The scholar only refers to the research conducted by Zeithaml et al. (1996) and its findings in his paper. The later mentioned scholars used surveys to conduct their study among computer manufacturer, retail chain, automobile insurer and life insurer. Parasuraman only uses the computer manufacturer in his paper.

Customer service and its quality

Customer service includes activities that have a direct impact on the interface between a customer and an organization and that help a manufacturer's product to reach a customer. (La Londe & Zinser 1976, 6; 271) Customer service has two

dimensions: inter-temporal and multi-dimensional. The inter-temporal dimension means that customer service is divided into pretransaction, transaction and post-transaction activities that cannot be seen momentarily separate set of activities. Multi-dimensionality of customer service means that availability of a product is much more than order cycle time and inventory. (La Londe et al. 1988, 13-14)

Customer service quality is the difference between customer perception and experience of the customer service. The service quality has two dimensions, a technical and functional. A technical, or outcome, dimension is what a customer is left with, when a service production process and its buyer-seller interactions are over. A functional, or a process-related quality dimension is how a customer receives a service and he/she experiences the simultaneous production and consumption process. (Grönroos 2007, 73-77)

Information

Information is data that has been analyzed or organized data, and data turns into information when it is compiled into meaningful patterns (Rowley 2002, 268; Saint-Onge 1996, 12).

Knowledge

Knowledge is information, context and experience combined together (Rowley 2002, 268.). Moreover, when information is processed and turned into valid bases of action, it is knowledge (Desouza & Awazu 2005b, 42.; Saint-Onge 1996, 12).

Customer knowledge management (CKM)

According to Gibert et al. (2002) customer knowledge management (CKM) is the strategic process by which cutting-edge companies turn their customers from passive recipients, to empowered, knowledge partners. It is about acquiring, exchanging and increasing the knowledge that customers possess the way that benefits both parties, customer and corporate. CKM consist of three parts: knowledge about, for and from customers (Desouza & Awazu 2005b, 43).

1.5 Structure of Research

This research consists of two main parts: theoretical and empirical. The theoretical part includes chapters 1, 2 and 3, and the empirical part is in chapter 4. The first chapter introduces the background of the research. It also includes the used methodology and theoretical framework of the research. Moreover, literature review and the structure of the research are discussed in the first chapter. The second chapter focuses on the quality of customer service in interface between a buyer and a seller. In the second chapter interaction model is introduced. This chapter first discusses what customer service is, interaction in customer interface and the requirements of service marketing. Then the interaction process is introduced more deeply, and the last part of the chapter is about GAPS model and how to use it to evaluate and find problem areas in customer service. The third chapter focuses on CKM and it begins by discussing the roots of CKM and what it contains. In addition, the third chapter includes challenges of customer knowledge management; cultural and competency challenge. The last part is about supportive tools and CRM systems. The fourth chapter includes the empirical part of the thesis and introduces the findings based on interviews. The last chapter (5.) combines the key findings and theoretical parts and introduces possibilities for further research.

Table 1: The Structure of the Thesis

Research questions	Theoretical part	Empirical part
1. What is the role of customer knowledge management in improving the quality of customer service in B2B markets between a customer and a seller?	2	4.4.2
1.1 What is CKM?	3	4.2
1.2 What is the quality of customer service?	2.5	4.4
1.3 How knowledge flows occur between a customer and a seller-employee?	2	4.2
1.4 What is the role of supportive systems in customer knowledge management	3	4.3

2 THE QUALITY OF CUSTOMER SERVICE

An organization sustains its position among competitors over time with customer service that is strategic and differentiated value proposition for specific customer segments (Christopher 1999, 11). Customer service can consist of many different activities and services. There are two major approaches to customer service: physical distribution and marketing orientation. In physical distribution, customer service happens when supplier's order, delivery and information system interface with the customer. This marketing approach sees customer service as one element of marketing mix without functional limits. (Tucker 1994, 32; 35-36) Customer service includes activities that have a direct impact on the interface between a customer and an organization, and that help a manufacturer's product to reach a customer. (La Londe & Zinser 1976, 6; 271) La Londe and Zinser (1976) have recognized three levels of customer service: activity driven, performance levels and management philosophy. Customer service is a specific goal when it is seen as an activity, like complaint or order handling and processing. In performance level, customer relationship is made into customer standards that are measurable. When customer service is seen as a philosophy, the whole organization is customer service –oriented. (La Londe et al. 1988, 11-12)

Customer service has two dimensions: inter-temporal and multi-dimensional. The inter-temporal dimension means that customer service is divided into pretransaction, transaction and post-transaction activities that cannot be seen momentarily separate set of activities. Multi-dimensionality of customer service means that availability of a product is much more than order cycle time and inventory. (La Londe et al. 1988, 13-14) The elements of customer service in B2B markets include delivery time and reliability, order accuracy, information access, damage, ease-of-doing business and value-added services. Delivery time is the time taken from creation of an order to fulfillment and delivery of it. Delivery reliability refers to the capability to have products/services available to meet the customer demand. Order accuracy is the degree, in which the items/services conform to order specifications. (Byrnes et al. 1987)

Service marketing requires a different approach than product marketing. Services have five characteristics that make them different from products: intangibility, simultaneous production and consumption, homogeneity and perishability. Intangibility means that services are performances, and they cannot be tasted, measured or patented. Heterogeneity refers to fact that service performances vary in daily bases because they contain human labour. Simultaneous production and consumption, or inseparability, means that employees have impact on a service outcome and that customers are part-creators of service experience. Perishability refers to the fact that services cannot be returned or re-used. Moreover, perishability makes balancing demand and supply hard for services. (Parasuraman et al. 1985, 42; Zeithaml et al. 2009, 20-22)

Interaction between a seller and a buyer organization occurs between individuals (Håkansson 1982, 19). The salespeople, the front line personnel, are usually those in an organization working with customers, and they are in a great position to gather knowledge about and from customers. To indentify proper information, salespeople need to recognize the information type needed and the ways of usage by management. Moreover, salespeople need to have required communication skills for exploring, detecting and gathering relevant information. (Liu & Comer 2004, 565; Liu & Comer 2007, 566) Salesperson's listening is a cognitive process to actively interpret, evaluate and respond to the spoken and nonverbal messages of current or future customer. Listening is the most often used part of a communication process, although it is not understood well. Moreover, increased trust in a salesperson and anticipation of future interaction result from high level of perceived listening behaviour of the salesperson (Castleberry & Shepherd 1993, 36). On the other hand, salespeople have previously been underutilized as market information gatherers (Tanner Jr. & Shipp 2005, 308), although according to Cross et al. (2001, 205) salespeople are important information source for industrial marketers. Frontline employees must create knowledge about customer needs in order to generate customer satisfaction and value in the interaction with individual customers. (Homburg et al. 2009, 65)

2.1 The Interaction Process

The interaction process is the core of the interaction model developed by IMP Group and Håkansson (1982, 17). Customer-seller relationships in industrial markets are long term, though the interaction process consists of individual episodes. Episodes are individual exchange situations that consist of individual actions, or moments of truths, between two organizations (customer and seller), although every episode occurs within the scope of the entire relationship (Figure 2). On the other hand, episodes have an effect on the entire relationship and a single episode can alter the direction of the relationship. Interrelated episodes form a sequence that can be, for example, a campaign or project, and following sequences form a relationship.

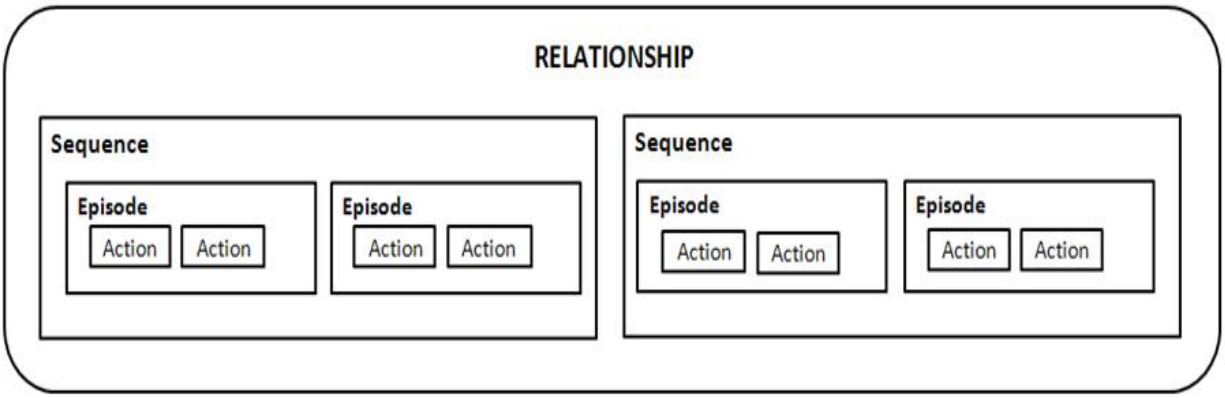

Figure 2: Levels of interaction

There are three kinds of episodes: generative, degenerative and neutral. Generative episodes increase trust, cooperation, mutual understanding and benefits by having a positive effect on a relationship, whereas degenerative episodes decrease all the factors by having negative impact on a relationship. Neutral episodes sustain the relationship without altering it. Each episode is influenced by the interaction atmosphere, norms and processes. Atmosphere is determined as a possible conflict or co-operation. Episodes include product and service, information, financial and social exchange. Over time possibly routinizing exchange of previously mentioned elements leads to development of defined roles of each partner. (Homlund & Strandvik 1999, 688; IMP Group & Håkansson 1982, 17; 42; 289)

Product or service exchange is usually the center of exchange and this is why the characteristics of an offering (product or service) affect highly on the relationship as a

whole. Information exchange can differ according to the content, width and depth of information, transfer and formality of the information. The information can be transferred either in a personal or impersonal form. Financial exchange is about the amount of money exchange that determines the economic importance of the relationship. Social exchange reduces the perceived risk between two parties by avoiding short term problems and maintaining a relationship between interactions. Moreover, social exchange has long term effects by building gradually mutual trust that in based on personal experience and the success of the other three exchange elements. All the four elements of episodes are important in building long term relationships. (IMP Group & Håkansson 1982, 16-17; Schurr 2007, 164) In order to receive information from and about customers, organizations need to gain the trust of customers. Trust is the willingness to rely on an exchange partner in whom one has confidence. Trust between two individuals or groups is expectancy possessed by a group or individual that another individual or group is reliable on a given verbal or written statement, promise or a word. (Moorman et al. 1992, 315; Rotter 1967, 651) To gain customers' trust organizations need to serve their customers the way that creates value to the customer in exchange to their given information. Although the customers are in charge of the amount of information they are willing to reveal to an organization, the lost of achieved trust can destroy the whole relationship. (Peppers & Rogers 2004, 81-82)

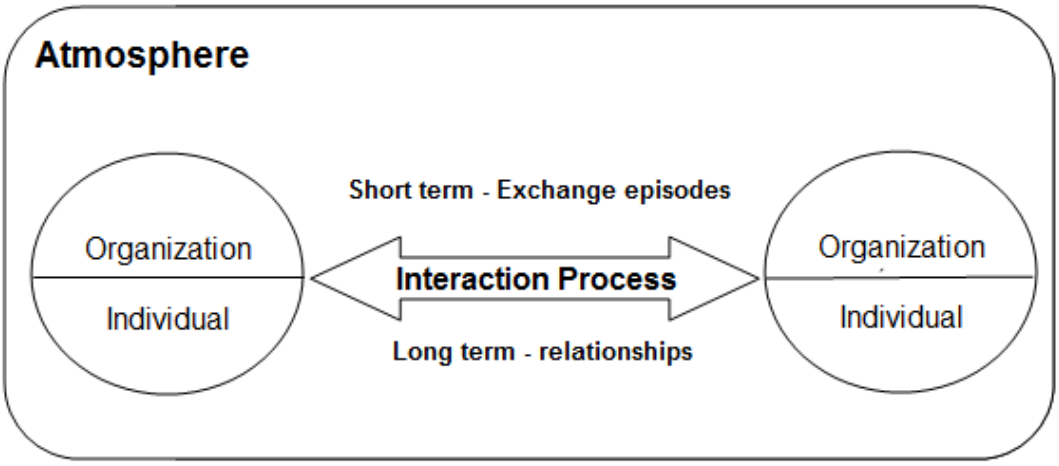

Figure 3: Interaction model (adapted from IMP Group & Håkansson 1982, 24)

The interaction process and the relationship between buyer- and seller organization are influenced by the characteristics of involved parties: technology, organizational

size, structure, strategy and experience, and individuals. In industrial markets technology is an important factor in the interaction between buyer- and seller organizations. Differences and specifications of each party's technological system influence the elements of interaction process. Size of organizations and power distribution set the basis of interaction. In general, domination of customers is more possible with large organization than small ones. The structure of the organizations can be seen as a framework for the interaction in short term, whereas in long term the structure can be modified according to the needs of interaction process or individual episodes (Figure 3). Organizational experience is the combination of organization's experience within a relationship, and experiences and activities outside the relationship. Although the exchange episodes occur between buyer- and seller organization, in general individuals are the ones doing the actual interaction and there are at least two individuals involved: a buyer and a salesman. In addition, there are several individuals from different departments and levels of hierarchy participating in individual interactions and they bring in their personalities, experience and motivation. (IMP Group & Håkansson 1982, 18-19)

2.2 The Quality of Customer Service

Service quality is determined by customers, and it is what a customer perceives it to be. Total perceived quality is the gap between expected and experienced quality. The service quality has two dimensions, a technical and functional. A technical, or outcome, dimension is what a customer is left with, when a service production process and its buyer-seller interactions are over. Frequently, this dimension can be measured relatively objectively by customers, because of its characteristics as a technical solution to a problem. A technical quality dimension does not count for total quality perceived by customers, because there are many interactions between a customer and a service provider. A functional, or a process-related quality dimension is how a customer receives a service and he/she experiences the simultaneous production and consumption process. Company and/or local image affects on the perceived quality. Positive image makes minor mistakes less damaging, and negative image will make an impact of any mistake worse than what they would otherwise be. These three dimensions form the experienced total quality. (Grönroos 2007, 73-77)

Expected service quality describes the expectations a customer has about the service based on the promises of a service provider and the references of other customers, such as family, friends and coworkers. Expected, or desired, service quality is influenced by personal needs and lasting service intensifiers. Personal needs are states or conditions essential to the well-being of the customer and that shape customer's desire in service. Lasting service intensifiers are individual and stable factors that lead the customer to a heightened sensitivity to service. These are derived service expectations and personal service philosophy. Derived service expectations occur when expectations are driven by another person or group. Moreover, expected service quality is influenced by marketing communications, word of mouth, company/local image, price and customer values. (Grönroos 2007, 76-77; Zeithaml et al. 2009, 82-83)

GAPS model developed by Parasuraman et al. (1985) describes the possible ways to satisfy an organization's customers better by diminishing the gap between customer's perceived level of service and desired level of service. The desired level of service is what a customer wants, and perceived level is what a customer gets. Moreover, GAPS model reveals areas that need improvement in the current service and by doing these improvements customers will be more satisfied. Parasuraman (1998, 315-316.) developed the GAPS model to apply to business-to-business markets. According to this model, inadequate service quality that is perceived by customers externally may be function of four key internal shortfalls. There are four gaps to fill in order to satisfy customers better and these are market information, service standards, service performance and internal communication gap. Organizations who are hoping to improve their service quality must close the internal gaps. GAPS model also requires the SERVQUAL model developed by Zeithaml et al. (1988b, 23). SERVQUAL model is a way to find out customers thoughts that what should be improved in the current service. Moreover, it is a way to determine what customers are expecting to get and what they are actually getting, the zone of tolerance. SERVQUAL includes five factors that are tangibles, reliability, responsiveness, assurance and empathy. Tangibles are physical facilities, equipment and appearance of personnel. Reliability refers to the organizations ability to perform the promised service thoroughly and reliably. Responsiveness is the willingness to help customers and provide accurate service. Assurance is knowledge and

politeness possessed by employees and their ability to arouse confidence and trust. Empathy refers to the individualized attention of the organization to its customers. (Grönroos 2007, 84; Zeithaml 1988b, 23; Zeithaml 2009, 111-115)

Market information gap describes the extent to which seller's knowledge of customers' service expectations are inadequate and inaccurate. There are questions that need to be answered in order to find out how wide market information gap is: to what extent do B2B marketers make cautious efforts to understand their customers' expectations beyond just their core offering requirements and what communication modes or other mechanisms are being used to learn about customers' service expectations? Service standards gap describes organization's failure of translating customers' service expectations promptly into standards and guidelines for organization's personnel. This gap depicts to what extent do B2B marketers have either informal service guidelines or formal standards for interacting with buyer-organization, where these guidelines or standards exist and are they based in systematic examination of customers' service expectations. (Parasuraman 1998, 315)

Service performance gap is formed by the lack of adequate internal support systems (e.g. recruitment, training, technology, compensation) that enables reaching the service standards. This gap describes how well B2B marketers communicate their business standards to the personnel interacting with buyer-organization personnel, and to what extent do the selling organizations' human-resources systems and policies specifically include customer-service issues. Internal communication gap depicts inconsistencies between what customers expectation and the received service performance (e.g. due to lack of internal communication between service "promisers" (such as salespeople) and service providers (after-sales service representatives)). It reveals whether the marketers' salespeople have ongoing contact after the sale with users in buyer-organization. If not, the gap shows if there are mechanisms for accurately transferring appropriate information from salespeople to those responsible for after-sales contact with buyer-organization personnel. (Parasuraman 1998, 315)

3 CUSTOMER KNOWLEDGE MANAGEMENT

Customer knowledge includes knowledge about potential customers, customer segments and individual customers, and knowledge held by customers (Rowley 2002a, 501). It is formed systematically from customer information, which is transformed from customer data, by integrating the information through the organization. (Campbell 2003, 376; Day & Wensley, 1988; Glazer, 1991; Hunt & Morgan, 1995) Customer knowledge can be acquired from many sources; some knowledge is gathered from transactions, whereas other acquired from interactions with customers (Garcia-Murillo & Annabi 2002, 875). Most often customer knowledge is in minds of employees or customers (tacit knowledge) though it can also be structured customer information located in databases in explicit form (Davenport 2001, 67; Gibbert et al 2002, 465; Rollins & Halinen 2005, 3; Rowley 2002b, 269). Tacit knowledge is personal, hard to communicate and highly based on action. In addition, tacit knowledge contains partially technical skills that are informal, hard-to-detect skills and know-how, and is embedded in the fulfilment of employee's role at work. On the other hand, tacit knowledge also includes deep-rooted, cognitive dimension that contains mental models, beliefs and perspective, and in this is why it is hard to communicate. (Nonaka 2007, 165; Rowley 2002b, 269) Knowledge resources in an organization include both explicit and tacit knowledge. Explicit knowledge is formal and systematic, and it can be turn into written form and is easy to communicate, for example as a computer program or product/service specifications (Nonaka 2007, 165).

Customer knowledge is important, because it is the original source of improved customer value (Rowley 2002b, 687). In order to avoid and prevent losing customers, organizations need to have knowledge about customers' behavior and preferences. Moreover, changes in the industry, customer behavior and type of customers have direct impact on organizations' current operations and future decision making. (Xu & Walton 2005, 956) A company is able to recognize unique characteristics and create proper strategies with increased customer knowledge. It seems that knowing customer perception of company's offerings and usage patterns is fringe benefit from developing and implementing an effective marketing program. (Conant & White 1999,

534) Managing customer knowledge with appropriate systems and process improve design of new products or services and their timing. It also gives early warnings and improves competitive intelligence. Furthermore, managing customer knowledge enhances customer commitment and makes them more loyal, and allows synergy of collaboration. (Garcia-Murillo & Annabi 2002, 877)

3.1 Customer Knowledge Management

KM is about managing and exploiting corporate knowledge and it guides organizations to utilize their knowledge resources in optimal way. (Rowley 2002, 269) The source of knowledge in KM is employees, team, company or network formed by companies. KM aims at efficiency improvements, cost reduction and avoidance to innovate already existing matters again. The benefit of KM is customer satisfaction. The role of customer in KM is passive recipient; whereas organization's role is to encourage knowledge sharing among employees. (Gibbert et al. 2002, 461) According to Couldwell (1999, 1), CRM is about utilizing existing customer information to increase organization's profits and retention of customers. CRM is strategic process that focuses on building long-term relationships with key customers and other key stakeholders in a profitable and value creating manner. By combining relationship marketing strategies and IT-systems, CRM allows organizations to understand customers and co-creation of value, but it requires cross-functional integration of human resources, marketing and processes. CRM framework consists of five generic processes that interact with each other. The five generic processes are the strategy development, the value creation, multi-channel integration, the information management and the performance assessment process. (Payne & Frow 2005, 168; 170)

The concept of CKM was created to overcome the deficiencies of CRM and KM, and by integrating CRM and KM models, a new cross-functional, more synergistic CKM model was developed. In CKM model, knowledge for, about and from customers are knowledge flows inside CRM, and CKM includes competence, collaboration, content and composition. (Gebert et al. 2003, 118) CKM is strategic process that consists of three components: knowledge for, about and from customers (Desouza & Awazu 2005b, 42). In order for CKM to be sustainable, organizations should give back to a

customer some of the value that has been created together. Knowledge in CKM is collected from customer experience, creativity and feedback that is satisfaction or dissatisfaction of customers. The rationale behind the CKM is to acquire knowledge from the customer without any middle hands as well as spread and develop the gained knowledge. CKM aims at co-creation of value by cooperating with customers and it is measured by benchmarking its performance in innovation and growth, and as contribution to customer success. Benefits of CKM are organizational learning, innovation and customer success, and the incentives are targeted towards customers. Customers' role is to be active partners, who are co-creating value, whereas the organization's role is to turn customers from passive recipients to active partners. (Gibbert et al. 2002, 461; 467) The management part of CKM (CKM as a process) includes generating, spreading and utilizing customer knowledge internally and between an organization and its customers (Rollins & Halinen 2005, 5).

Knowledge for customers, or knowledge to support customers is created within organizations, and it is given to customers in order to make them satisfied. It is knowledge about attributes and characteristics of products, substitutes, quality and problems. Knowledge for customer is given in order to support customers' experience and decision making. Improving customer experience is highly important in terms of customer retention. (Desouza & Awazu 2004, 12-13) Customer support knowledge comes from different sources, and it has many applicable purposes. Moreover, this type of knowledge is continuously developing, because products and models are changed, new problems are faced and new documentation is created in a daily bases. Knowledge to support the customer is typically wide and deep, because it has to cover different products or services and problems involving those offerings, and knowledge has to meet the need of customers for each product or service. As a result, huge amount of knowledge is needed to cover these above mentioned requirements. (Davenport & Klahr 1998, 199-200)

Knowledge about customers includes customers' lifestyle, demographics, values, believes and motivation. Knowledge from customers is gathered so that the organization could understand customers' needs. This knowledge can be gathered from different sources, for example from financial institutions, credit reporting agencies and local stores. This knowledge can be also gathered from complaints and

queries. The easy access and availability of this kind of knowledge has raised the need of statistical and logical analysis techniques in order to recognize the relevant knowledge for an organization. (Desouza & Awazu 2004, 12; 14)

Knowledge from customers is ideas, thoughts and information from organizations' customers and it includes personal preferences, competition and trends in the industry. (Desouza & Awazu 2005a, 149; Desouza & Awazu 2005b, 42-43; Garcia-Murillo & Annabi 2002, 879; Gebert et al. 2003, 109; Kohlbacher 2008, 625) Knowledge from customer is ideas, thoughts, insights and information about organization's current products and services, as well as for product/service innovations. Knowledge from customer is more about aroused new ideas and feedback given by customers. (Desouza & Awazu 2004, 12-14) Customers should be seen as co-creates of knowledge in knowledge from customers. This is important in B2B industries, but it applies also to business to consumers (B2C) industries. Organizations in all industries should see learning and teaching opportunities in any interaction with customers. Moreover, organizations need customers who are ready to take risks by sharing and creating knowledge. (Desouza & Awazu 2005b, 45)

CKM can be divided into five different styles; prosumerism, team-based co-learning, mutual innovation, communities of creation, and joint intellectual property (IP) or ownership. Prosumerism refers to customers' double role as producer and consumer. The focus is on developing tangible assets and benefits, whereas the objective is to improve products and create benefits to both parties involved. Team-based co-learning is a situation, in which two organizations form cross-organizational team to learn from each other and create new knowledge. The focus of this CKM style is in producing corporate social capital and the objective is to improve team learning for processing systematic change. Mutual innovation depicts the mutual attempt of innovation process of two organizations, in which the knowledge comes from end-users' usage experience with product/service and their own needs. The focus is in developing new processes and products, and the objective is to maximize their return on innovations. Communities of creation are formed by groups of people, who have mutual interest in an ordinary topic, worked together for long period and are willing to share and create knowledge. In addition, communities of creation extend over organizational boundaries to create common knowledge and value. The focus of

communities of creation is mission-specific and in creating professional expertise. Joint IP/ownership is the result of an organization's approach where its owners are customers and its product/ service development is owned by customers. The focus in joint IP/ownership is in tangible customer IP sharing, whereas the objective is in maximum returns on joint IP. (Gibbert et al. 2002, 465-466; Pequette 2006, 96)

3.2 Challenges of Customer Knowledge Management

Gibbert et al. (2002, 466-467) have found in their research two challenges for CKM. First, cultural challenge in terms of re-thinking the role of customer, and its implications on employees approach towards customers was found to be fundamental. Typically companies struggling with this challenge did not consider customers as a source of knowledge, instead customer were seen as a revenue stream. Scholars encountered three different reactions within cultural challenge. In corporate narcissism organizational mentality is that they know their business better than their customers. The lack of a critical perspective to customer knowledge is reflected as corporate shyness, in which an organization feels that making their internal process transparent to customers is too revealing. Customer knowledge does not substitute R&D, although it is an important factor in innovation process. CKM does not mean uncovering all organization's knowledge to customers, and moreover it does not mean adopting all customer knowledge as it is. Second, competency challenge occurs when organizations facing this situation understand that their KM or CRM systems were developed with a specific purpose in mind, intra-organization knowledge-sharing platform. The platform does not allow single-point entry that creates interactivity and convenience for those organizations wanting to open up their systems to customers. Moreover, usually this platform is designed only for internal usage. (Gibbert et al. 2002, 467)

3.3 Supportive Tools

Development of systems and technologies, that enable the contact employees to provide good service, customer information databases and systems for effective internal service support are important parts of internal marketing. Internal processes have been highly affected by information technology and internets that have provided

effective support system. People and internal process can safely and time-efficiently be connected due to easy access to e-mail, websites and databases. (Grönroos 2007, 395-396) CRM includes methodologies, software and usually Internet capabilities that help manage customer relationships in a company, and as a term it was developed by information industry (Xu et al. 2002, 442). CRM technology can help to identify future high-value customers, target direct marketing efforts, capture relevant behavior date, provide better information to front line, deploy knowledge management systems, and follow customer service satisfaction and customer defection and retention levels (Rigby et al. 2002, 106.).

Scholars have recognized three types of CRM systems: operational, analytical and collaborative. An operational CRM system, or front office CRM system, collects customer data in customer interface including for example field service, sales force automation, and customer service and support. An analytical CRM applications, or back office CRM systems, are used to build data warehouses, improve relationships and analyze data, for example. They turn customer data into customer information by analyzing data by using tools like data mining, marketing and campaign analysis, clustering and segmentation. Data warehouses are an important part of CRM systems. Collaborative CRM systems are used to build online communities, personalize service and develop B2B customer exchange. (Adebanjo 2003. 571; Rollins & Halinen 2005, 3-4; Xu et al. 2002, 449) Despite of its many good effects, CRM systems are facing many challenges. Corporate decision making may not be influenced by the IT departments because they may lack the needed knowledge base or power causing that methodology is not end-user driven. Moreover, CRM projects do not generate a company view of customers because they are led by functional management. A company investing on CRM technology should have customer-oriented organizational culture because without it the company may not produce acceptable return on investment. A failure can also occur if CRM application design bases on single functional view rather than organizational customer view. There is danger for over-automation if functionality drives the CRM design. In addition, the lack of inadequate network infrastructure to support the CRM system can cause failure of implementation. (Xu et al. 2002, 446)

4 CASE ELOMATIC OY

The empirical study was conducted in B2B environment among employees in customer interface in Elomatic Oy. This particular study was conducted in Elomatic's office in Turku. All the interviewed seller-employees were chosen by the contact person: two vice presidents from different departments, senior design manager and management secretary. The management secretary was chosen for her expertise in Elomatic's CRM system and the others, because they work in customer interface. The duration of interviews was between 30 to almost 50 minutes (See appendix 2) and interview questions were set up before the actual interview[1] (See appendix 1). Elomatic Oy is privately owned, Scandinavian engineering and consulting corporation that also designs software. Its services are for example industrial design, laser scanning, and usability analysis and visualization services. Elomatic Oy does business for example in Finland, EU, Russia, Asia and Oceania, Africa and Americas. The company has six offices in Finland, two in Poland, and an office in China, Russia and Serbia, and a joint venture company in India. The company's business areas include process, marine, mechanical and software, Cadmatic. Process area consists of biotechnology, pharmaceutical, food and beverage, chemical and process industries that are energy, starch and potato, automation, and HVAC. Mechanical area includes paper machines and mills, machine design and automation. (Elomatic 2011) Elomatic Oy has domain and foreign customers ranging from pharmaceutical companies and paper mills to shipyards, food producing factories and industrial production companies.

4.2 Customer Knowledge Management

In an actual customer interaction a seller-employee acquires knowledge about a customer including the name of the customer company, its contact persons, address, phone numbers, industry type and possibly operations type, position of the contact person and the department, in which he/she is located at. This is knowledge that is gathered concerning all the customers across all the departments of Elomatic. Moreover, seller-employees try to find out if a customer-company has any own

[1] The interviews were conducted in Finnish. The quotations were translated into English.

design or do they outsource everything. (Vice president A, vice president B, senior design manager & management secretary 2011) "*We do not systematically enter for example any data about customer-company's turnover or amount of personnel, or the way that where in the world a customer operates."* (Management secretary 2011) Any other additional knowledge gathered about a customer or the customer company's representatives depends on a department and a seller-employee or other persons in the meeting. For example, marine department also determines the size of a customer company, what it is like and the key people. *"We do not have any check list that this and this knowledge need to be gathered before visiting a customer. We do not have any system for that, so each person does it according to their way depending on what they feel is important." (*Vice president A 2011). Knowledge about a customer is gathered in customer interactions as well as from external sources. The external sources include word of mouth (WOM), Web sites, contact person, and institutions, for example Finnish-Russian Chamber of Commerce. Moreover, Elomatic has some employees, whose job is to make background check-ups for new customer companies.

Knowledge from a customer is more common among old customers, although the amount of knowledge varies depending on a customer. It includes what kind of designing a customer purchases, what design disciplines they have. The main factor influencing the amount of knowledge acquired from a customer is the personal chemistries between a seller-employee or contact person and a representative of a customer. "*Some customers take clearly a distance, do not talk about themselves, so that they tell or send offer request that now we do although monetary agreement exists. And others are that kind that there is more interaction and it is more informal and then more knowledge is exchanged when asking how they do, and it varies a lot depending on a customer."* (Senior design manager 2011) The informal communication is the situation, where knowledge from the customer is encountered. "*The conversation goes not go the way that we only talk about ourselves and they about themselves, though there is also discussion about business in general."* (Vice president B 2011) In these interactions the seller-employee or other contact person gets off the record knowledge that can be utilized. A customer may ask if a seller-employee has heard about some rumor, or what is their opinion on some matter. In addition, foreign customers are asked about matters relating to the industry.

Moreover, knowledge from a customer includes prospects of the customer and whether they have urgent need or in long term. In some departments, situations, in which employees hear about potential customer from their current customer, is encountered. (Vice president B & senior design manager 2011)

Knowledge for a customer has two forms verbal and written. Verbal knowledge to support a customer is given as presentations in meetings with a customer. A presentation includes knowledge like when Elomatic was founded, its history, financial development and the growth in amount of personnel. After the general presentation about the company the given knowledge turns into mote technical focusing on the services offered. Usually presentations are given in the first meeting, but with older customers updates are given if needed. *"In a way, first we try to convince them that we have competence, if it is a new customer, so that they will see, that we have what it takes, and expertise. They would get a wow-effect, that yes, these they are capable of doing the project."* (Vice president B 2011) Written knowledge includes sent general presentation slide series to a customer, product brochures containing also knowledge about Elomatic, and a product catalogue. The product catalogue introduces service products in all departments and it is meant to give out in face-to-face meetings and avoid sending through mail. (Management secretary 2011)

4.2.1 Channels

Channels for acquiring knowledge include active and passive channels. Active channels are phone calls and face-to-face interactions with customers, such as meeting, negotiations and fairs (for example Graintech in Russia). In addition, the knowledge can come from indirect ways; from inside the company, from customer meeting in another department. Passive channels include web pages, WOM, institutions, contact person for Russian affairs, Internet (for example Google), offer requests, magazines relating to the industry, marketing tour, e-mails and handouts. Usually word of mouth includes knowledge about someone's retirement, change of a company or someone has scored a big deal, in which subcontracting, design or consulting is needed. Moreover, some of Elomatic business areas operate in a market that is small, also in global scale, meaning that there are rather few and big

customers in a certain industry like marine and starch business. For example, starch business is really small circle of operators even globally and each operator basically knows each others, therefore they also provide information and the same applies to marine. (Vice president A, vice president B, senior design manager and management secretary 2011)

The knowledge for a customer is shared in face-to-face, which include meetings with customer, fairs, projects negotiations and phone calls as well as passive ways. Especially important channel for all kinds of knowledge are fairs in industrial markets. For example every year starch and potato department goes to Graintech in Russia that is fair of starch industry. Passive ways are marketing materials and mailings that are either electronic or regular mail, News that is the customer magazine, offers, training functions, Web pages, e-mails, sales letters, and advertising on television. Training functions on clean rooms has been arranged for pharmaceutical customers, for example, but through them Elomatic has also aimed at sales, not only share their know-how. Elomatic has not had any advertisements on television, but its competitor has done so. According to the vice president of Marine, this could be good way to gain attention in Finland if the advertisement is done well enough. (Vice president A, vice president B, senior design manager and management secretary 2011)

4.2.2 Typical Interaction Situation

Typical interaction or meeting with customer depend whether it is a first time meeting or is the customer already familiar with Elomatic. In the case of a new customer, before the first meeting there has been interaction already, when setting up the meeting. It may have been phone call, e-mail or contact made in a fair. Usually a seller-employee or other contact person gives general presentation about Elomatic, its history and development as well as personal information about their position and background. Then it is a customer's turn to tell the same things about their company and themselves. After the official introductions, when the level of basic knowledge about both companies is even, then a seller-employee begins the selling process by trying to find out if the customer needs their services and do they have upcoming new facility. Some customers tell, whereas other does not, but usually customers tell that, because it is a private situation between the two parties and they have reached

some degree of trust. Although there are some customers that require confidentiality agreement in this point before they are willing to talk about more. The correspondence between two parties before the first actual meeting is in common in each department in Elomatic. There are some exceptions, for example in starch and potato department they have a Russian contact person in Helsinki, who is first in touch with potential customers. Later, in the first meeting the customer usually already knows something and the first presentation is about the company. Then they move on to technology and introduce Elomatic's benefits compared to competitors as well as its strengths. When the customer is already familiar, then the meeting turns directly into negotiation about a particular, possibly already sold project. (Vice president A 2011)

4.2.3 Barriers of Customer Knowledge Management

There are many possible barriers in the flow of knowledge. Some of them are due to a language or cultural differences and some are based on people's way to do things. Sharing knowledge depends on each person, some people share more than others. Moreover, the barriers are influenced by how employees in Elomatic act, how they react to the acquired knowledge and how important they considered that the knowledge needs to be shared. Moreover, the receptiveness of a customer affects the knowledge flow. "*It also matters how much a customer is interested if a consult comes to a visit and tells about their know-how. If are the seventh during that week, then a customer is not interested."* (Senior design manager 2011) Moreover, lack of trust is a barrier that is created between two people. In Elomatic's industry, there are operators that have been there for decades and they may have "burn some bridges" behind them causing in the current situation barrier to flow knowledge with some representative that might have been insulted. On the other hand, lack of trust in encountered rarely according to the senior design manager. Confidentiality agreement, customer registers that have not been updated and no access from offices in Poland and Serbia to the CRM system also may cause barrier to flow of knowledge in some degree.

Language causes barriers to knowledge flow in Elomatic and the language barrier with international customers causes that a seller-employee simply can not tell as

much as he/she would like to. Moreover, marketing and other materials cannot be produced as well in other languages as in English causing that those customers who can speak fluent English are better informed than others. Russia, China and India are typical example for countries where language and writing barriers exist due to the different alphabets. *"We may speak a bit poor English, and a customer usually speaks even worse, then yes knowledge will inevitable be left undistributed or it may even get distorted on the way."* (Senior design manager 2011)

Cultural differences may create a barrier to knowledge flow, because in different cultures people have different ways to do business. For example, in the Mediterranean countries and other countries too sometimes what they say does not apply, meaning that if it is agreed that something will be done, or time and date of a meeting, they may not stick to it. Although Finnish punctuality and mentality can be seen as an advantage to Elomatic as a service provider, because as Finnish company they see it as matter of honor to do what is agreed on. Even compared to a Dutch, a Norwegian or a German, there are differences compared to Finland. Furthermore, sometimes countries, such as China, India and Russia, are so vast and culture is very different to Finland, that it causes understanding and recognition problems. (Vice president B 2011) This may create a knowledge barrier that results in misunderstandings causing that there is a person from totally wrong level of organization representing the customer-company. "*There may be some salesperson, when Elomatic would have needed someone from the management. In addition, e-mails are not read and sometimes note even answered. When trying to reach a customer by phone, it may difficult due to time difference or they may not answer a phone call coming from unfamiliar number*." (Vice president B 2011)

4.3 The CRM System

Elomatic uses Microsoft's CRM that is a tool for marketing and sales. It is a database based system for customer relationship management. It has been actively used over a year and its running-in process is not finished yet. Elomatic only uses fraction of the potential that the application has to offer, because of the nature of the business. The full system fits better for single consignment producing company than for consulting engineering company. According to vice president B, the CRM systems provide new

possibilities all the time and the utilization is in good shape, but now it is shaping the way to operate with the system. The benefit of the CRM system is seen to be that when an another person, not the regular seller-employee, is in contact with a customer, the activities and offers can be checked from the system, though too often there are no notes about that particular customer. Another application to store knowledge is K-station that is Elomatic's own server, and certain people in the sales department and certain people in project file side have access rights to the station. K-station is also linked to CRM system.

In the system there are accounts that are customer-companies, and under accounts there are contacts that are contact representatives of customer. The account has an owner that is Elomatic's seller-employee or other representative and the owner is responsible for updating the knowledge of his/her account. Opportunity-entity describes the offer-order process and it is in phases. A CRM activity can be an appointment, a phone call, a letter or an e-mail, which can be linked to the contacts and accounts. (Management secretary 2011) Moreover, there is a lead-entity in the CRM system that is for possible future sales. They would also be easy to follow and convert into sales. Searches can be conducted in the system and by typing the name of an account there can be found activity history, upcoming activities, sales history, which cases have been lost and which won, and upcoming projects. Stored knowledge is as good as in which form it has been saved to the system. In addition, the CRM system can be used as delivery list for sending out News, the customer magazine, and other targeted marketing lists, like Christmas card lists. (Senior design manager 2011)

A certain people have access to the CRM system. The application is available in side Elomatic's property, when a computer or laptop is connected to the company's Internet. One person interviewed does not know how to access the system outside Elomatic's Internet, one has not needed to use it outside and one has used the system when meeting with customers. Both seller-employees, the one that does not know how and the one that has not used, do not see the need to access the CRM system outside the company, and rather write the question or matter down and check it later. The amount of stored knowledge depends on a person, but in principal too little knowledge is taken to the system, thought the situation has improved. Usually

stored knowledge is in a form of memo that is made base on a conversation on phone or a meeting with a customer. The stored knowledge is mainly technical relating to sales and marketing, offer operations, staring a project and prices. Moreover, the system is connected to Outlook enabling adding e-mail exchange straight to it, and this is used in Elomatic. A seller-employee or other person possessing an access transfers all the necessary knowledge for doing business according to him/her into the CRM system. ”*All that knowledge is acquired that has an effect on the offer pricing and equipment supplier offers, as well as own assessments, required work amount, all the relating material to the offer, previous/current deliveries to the customer and potential correspondence.”* (Vice president A 2011) Although employees are encouraged to rather putting too much knowledge than leave something out, but still some employees write on the corner of their notebooks and then the knowledge will not came available for the organization. Employees should not enter any irrelevant knowledge into CRM system, like age of customer’s representatives nor comment on personality, although it is recognized to be in some cases possible and even needed. In Elomatic, it has been under a discussion and they feel that entering irrelevant knowledge does not belong to the operations of the company.

The CRM system is updated by each account owner. It is each owner’s responsibility to update and maintain knowledge in the application manually, although secretaries type business cards gathered from a fair into the system. Elomatic has an administrator for the CRM system, and she takes care of usage training and oversees it. Moreover, there is a development group consisting of manager from different departments, and it still follows the development of the implementation process. It also develops, examines how the system has been used and asks user experiences considering whether there is a need to change the way to operate the CRM system. Each account and contact is ensured to be new before taken into the system in order to avoid overlapping knowledge. Knowledge in the system should be up-to-date, but there is some lack of the most recent knowledge. For example marine unit needs to go their accounts and contacts through in order to clean up the CRM system. They want to keep only active customers that have been contacted recently. (Vice president B, senior design manager and management secretary 2011)

The CRM system is seen to be easy to use, but it is rather burdensome to operate. If the system would be utilized to its full potential it would require a lot of work. In the beginning, there was some resistance to change, and the system felt burdensome and difficult to use. The general attitude towards the CRM system is positive and it is seen very useful among all the persons interviewed, although some resistance still exists among employees after three years. *"This is much better the way that this is easier to use and clearer, and this is not as stiff as the other one was"* (Senior design manager 2011) The prior system was mainly used by Cadmatic. In principle, if each phone call and other activity should be taken to the CRM system, it would become really hard. On the other hand, if every action is taken into the system the knowledge flow may become too overbearing and makes finding a certain piece of knowledge difficult. The way to operate is still taking its shape and there is a need for common ground rules. In marine department, for example, the customer register was taken from the previous system and needs to be gone through in order to eliminate all the clutter that has piled in it. "*Without that system we would be more vulnerable, if tacit knowledge is in a corner of a notebook or where ever each person has had it previously, then we are a bit in a weak position."* (Vice president B 2011)

4.3.1 Tacit Knowledge

There is a consensus among all the persons interviewed that tacit knowledge exist and is created more all the time, and some even think that they possess too much knowledge in their minds. The benefit of writing down and taken the tacit knowledge into the CRM system is realized, thought there is knowledge that can not be turn into written form, for example knowledge that is situation specific or interpretation from subordinate clause. On the other hand, the risk is realized that if a person possessing crucial tacit knowledge chooses to leave or retires, it may cause delays, additional work, drawbacks and possibly financial losses. Retirement and quitting in some degree are something that can be planed ahead. When a person retires his accounts will be divided to other seller-employees, and if needed key customers are visited together with the retiring person before he leaves. Although it is not the same as the previous contact person and the relationship needs to be warmed up again. (Senior design manager 2011) *"That if a person quits and burns one's boats then a person may left something like that, or a person is terminated. But this has never happened*

to us, and usually, even those quitting, divide their customers to others and inform customers that situation." (Senior design manager 2011)

Tacit knowledge is a risk due to the personification of customer relationship, if there is always only one seller-employee taking care of a certain customer. This situation should be avoided, for example, in starch and potato department a Russian representative of Elomatic manages the relations with Russian customers. The risk of him leaving is recognized, and if that would happen, it would require a lot of learning and teaching. That would be time-consuming and harmful for the business, because in Russia relations and contacts are needed to do business. *"The lost of tacit knowledge is the way that in all the mentioned cases it goes out. But of course, if it goes to a competitor, it is a double harm, because they have their ways to get is out whether one ones to share it."* (Vice president B 2011)

Tacit knowledge is typically exchanged in informal face-to-face interaction situations such as lunch, fairs, informal function after official one and a meeting in free time. Usually these situations are more free conversation resulting in exchange of more tacit knowledge. Furthermore, tacit knowledge can be exchanged in a formal meeting when the relationship to a customer is established. The more time a seller-employee has time in his/her hands to discuss with a customer or college, the more knowledge is being exchange, because the discussion becomes deeper and wider. During office hours the knowledge exchange is more related to a specific project. Although the role of informal interaction situation has been recognized in the exchange and as well as acquisition of tacit knowledge, the company does organize this kinds of events, but in principle the representing happens in their property. "*Occasionally some of the customers are being invited for example cultural event by one or more our seller-employees and that is a good chance to get to know the customers better. Moreover, in software business side, Cadmatic arranges User's Meetings, in which the standard users are invited. They are provided with programme and hospitality. Sometimes Elomatic organizes seminars or lectures, in which a new product or service is launched, and some valuable information is shared to a selected group of customers."* (Management secretary 2011)

4.3.2 Improvements to the CRM System

The CRM system is found to be satisfactory and better than the previous system, Act. The main need for improvement concerns the way to use the system. Although there are common ground rules for usage in Elomatic, they still need to be unified. The activity registration is not commonly used, but according to senior design manager it is needed to be done. To implement this improvement training for taking activities into the CRM system is required. The system itself technically enables to do the same thing in many different ways, and it should be in a way that Elomatic operates in a certain way. Furthermore, some employees operating in customer interface, such as project managers, do not have access to the CRM system, and the only way to take knowledge there is through secretaries or supervisors. Marine department would improve the reporting side of the CRM application, although it is realized that the system allows making different kinds of reports. Due to confidentiality agreements there is a possible need for access limitations, but this would affect negatively on knowledge sharing and in principle it is unnecessary in Elomatic to block anyone's view to the certain account. Moreover, there is a need for adding features to CRM application so that the skeletal agreement can be taken there. (Senior design manager 2011) Although employees in Elomatic have agreed on only taking essential knowledge for making business into the system, there is a need for softer customer knowledge. "*Taking customers' hobbies or interests into the system is seen a good way to lighten up conversation and also to connect with customers."* (Vice president B 2011)

4.4 Perception of Customer Service and Quality Improvements

"In the consulting engineering business the customer service is considered to be separated into three parts: before a project, project and post-project." (Senior design manager 2011) The sales, marketing and offer operations are before the actual project, and because the responsibility lies on fewer shoulders, the quality is believed to be good. After the sales are done, then the responsibility sifts to the project manager in production organization during the actual project. The project manager answers for what is agreed and sold to the customer including additional work. The quality of customer service is also considered to be in place in the project phase. The post-project customer service includes guarantee and follow-up meetings with

regular customers. Follow-up meeting are seen as a part of quality delivered. In addition, guarantee time services consist of installation phase operations and post-completion operations, and Elomatic aims at keeping up contact with customer to be ready for next projects. All in all, the quality of customer service, and design and implementation of project in Elomatic is aimed at so good level that they would be an alternative to consider for next project or clear choice for project. (Senior design manager 2011) Customer service seems to be problematic in this case. Customer service is hard to define among interviewed personnel and it seems that one of them cannot even name any customer service. Moreover, the quality of customer service is found to be hard to define, although it is considered to be good.

In some departments the quality of customer service depends only on the person working in the customer interface in that particular unit. *"Promises and other agreements are kept easily, because the people are located in the same room allowing continuous communication. Rarely there are any services after the completion of a project and usually deliveries are part of the implementation of a project and in that phase there are different personnel working with a customer*." (Vice president A 2011) Customer service quality and general performance quality are followed by doing customer satisfaction surveys. Moreover, Elomatic uses project feedback questionnaires, and gathers feedback straight from customers in a closing meeting as well as during a project based on a project manager's experiences and interpretations. Supervisors as project leaders have a responsibility to follow a project, and in the sales unit they are required to ask from project managers, how the project is progressing. According to the senior design manager, customer should be always served well. But perceived customer service by customers should be in balance with return, project and quality goals hence Elomatic should come out from the project with regular margin. If the level of customer service with foreign customers would liked to be equal compared to other customers, including China, India, Russian and the whole world, all materials and service should be provided in their native language, but it is unrealistic (Management secretary 2011).

4.4.1 GAPS Model

Market information gap exist in Elomatic. The company usually only gathers customer knowledge that is essential for business. Although Elomatic does satisfaction surveys and feedback, the satisfaction rate relates mostly to the actual offering. It seems that communication modes being used are actual face-to-face meetings, phone calls and e-mails. During these moments of truth seller-employees are trying to find out what a customer's actual need is, but usually very little about their customer service expectations. Service standards gap can be recognized in the case company*. "In my opinion, it should be thought in a way that we should operate the same way as Elomatic from each office towards customers, and not the way that here we operate this way, and in Helsinki and Jyväskylä that way, although, in principle, it is the same process."* (Senior design manager 2011) Moreover, a single customer may be operating with all the offices and that customer will get different service experience in each of them. There is a need for informal operating policy. Elomatic has an operating system that bases on quality standard, but how much is based on customers' service expectation is unclear. Service performance gap includes international support systems. Elomatic has done some actions to diminish this gap. *"We for example train project managers for this. There are negotiation and sales skills, and customer meeting procedure has been gone through with professionals. In a way we would improve this most long-lasting customer interface."* (Senior sales manager 2011)

Barriers for customer knowledge flow can affect on customer service quality. Although, two of interviewed employees told that they have encountered only some problems in customer service caused by knowledge barriers. Internal communication gap especially exist in the interface of sales and production. There is a possibility for distortion or stagnation of customer knowledge to the other party. " *Sales department sells something and production department produces something, and now we are not sure that was it exactly the same that was ordered*." (Senior design manager 2011) Though this situation is really rare, it may still occur due the recognized issues in sales and production interface. Sometimes mistakes during a project lead to financial compensation, but usually they are handled by repairing the problem.

Elomatic takes a responsibility of its errors and repairs them. According to the senior design manager the reclamation can be also handled with quality giving a good overall feeling from a project to a customer. Internal communication gap also is recognized among seller-employees, and the worst case is that if a service is tried to sell customer twice due to the lack of knowledge transfer. "*Barriers of customer knowledge flows may affect the way that we do not get knowledge, to which we should react somehow. It can cause misevaluation or there may not be any reaction when simply there is no knowledge for it."* (Senior design manager 2011) Seller-employees in Elomatic are continuously in contact with customers during projects and aim at keeping a contact with customers after a project is done, but the degree of it is unclear. Moreover, there are minor mistakes caused by barriers for knowledge flows include sending News- magazine to a wrong address due to the lack of updated address knowledge, or the CEO of a customer or other contact has changed. Other embarrassing situations arise when CRM system has not been updated. A customer may have skeletal agreement including lower price, and when it is not taken to CRM, there may come some unpleasant situations when a seller-employee tries to sell cheaper or more expensive. (Senior design manager 2011)

4.4.2 Customer Knowledge Management in Customer Service

Customer knowledge is utilized in a way to operate with customers and it moves along with a project. People ultimately responsible for customers should know what is happening with that customer. Moreover, during a project reclamation and error matters usually come up. They are discussed or written down in the CRM system so that they do not come up as surprise in a customer meeting. Customer owners utilize customer knowledge, explicit and tacit, to guide operations in order them to be targeted, and knowledge affects on what is offered to customer and how it is done. In addition, customer knowledge is utilized in the CRM system by exploring who else has been in contact with a certain customer. "*Of course, it is very nice from the customer's point of view, that he/she gets an impression that, hey, they really know about our operations, and they do not make mistakes then. " On a way a customer needs to say that we just received a call from you yesterday. On a way it is customer service*." (Management secretary 2011)

Utilization of customer knowledge still needs improvements, although it has been already in some degree changed. First, the registration of customer knowledge needs improving, and there is a realized requirement for systematic way to take knowledge into the CRM system: what will be taken, in what kind of form and how it is monitored in the system. Second, seller-employees using the CRM application should keep the work going, because if they do not use it systematically, then they are easy a bit out of a project hence all the customer knowledge is in the system. Elomatic should also create definition of policy for what kind of customer knowledge is needed to be utilized, though it excludes irrelevant customer knowledge for doing business. In addition, an operating policy that would apply the whole Elomatic is seen needed in order to create coherent customer experience in all the offices, in Jyväskylä as well as in Helsinki. Customer knowledge should be also used better during the process; both design and implementation, to make sure that needed changes will be done and not repeated.

The CRM system should have enough and the right knowledge as well as the latest knowledge concerning operations in order to avoid asking the same thing twice from a customer. Moreover, the lack of a specific knowledge does not cause reaction, because the information has not been transferred causing a lost sale. Both of the above mentioned examples would be solved by developing common ways to operate in Elomatic. In addition, customer service can be improved through the CRM system by developing knowledge flow, registration of customer knowledge and CRM system so that there would be places for right knowledge. More specific and updated customer knowledge allows better target presentations when visiting customers. There is also need to depict customers' processes; what kind of blocks it consists of, and this can be also used in targeting the offerings and materials. All in all, seems that in Elomatic seller-employees see the way to improve quality of customer service with better utilization of the CRM system rather than using knowledge about, from and for customers as a way to do it. Moreover, knowledge flows can be improved by recognizing barriers of knowledge flows. By educating language skills and culture, possible misunderstandings and non-intentional insults can be avoided.

5 CONCLUSIONS

The need for customer service rises from the changed customer needs and market conditions. More and more B2B companies need to use customer service as a way to differentiate themselves and satisfy their customers better. The need of customer service is also recognized by the case company, Elomatic Oy. CKM includes knowledge about, from and for customers that are acquired and given during interaction process. Interactions include active and passive channels ranging from face-to-face meetings to e-mails. Salespeople have significant role in gathering the customer knowledge, because they are working in customer interface. CKM is affected by supportive tools that include CRM applications.

Knowledge about a customer is gathered from many different sources, but it is also gathered in face-to-face interactions. Knowledge from the customer has a minor role and it usually includes rumors or future prospects of a customer. Knowledge for a customer also includes technical and company-relating matters, and it is given through many channels. CRM system in Elomatic has faced some resistance to change in the beginning, but currently it is seen very beneficial. Although the CRM application is satisfactory, still too much customer knowledge is possessed by seller-employees as tacit knowledge. During the interviews several improvement issues raised up, but generally they concern more about ways to operate the system rather than the system itself.

To improve customer service quality, an organization needs to first determine and evaluate the current quality. Customer service and its quality are both difficult to determine and evaluate in Elomatic Oy. GAPS model revealed issues that should be cover in order to improve the quality of customer service (Table 2). All the gaps exist in Elomatic’s customer service. All in all, the biggest problems in current customer service relate to internal communication, in which sales and production interface customer knowledge is distorted or absorbed causing wrong responses, lack of reaction or totally wrong service. Other problems relate to lack of examining customer expectations and basing quality standards on those expectations. Customer service can be improved with CKM by developing the knowledge flow and acquiring non- business-relating knowledge like hobbies to connect better with

customers. In this way the personal chemistries between a seller-employee and a customer could improve allowing deeper knowledge exchange. Although the case study does not give any significant evidence for the research question, and this is partly because CKM is seen rather a way to operate and utilize the CRM system than a tool for gathering, analyzing and sharing customer knowledge, and most importantly tacit knowledge from a customer.

Table 2: GAPS model

1. Market information gap • Customer satisfaction relating to core offering • Knowledge of needs, not of expectations	**3. Service performance gap** • Internal support system: CRM • Training
2. Service standards gap • No unified service experience • Need for informal operating policy	**4. Internal communication gap** • Between sales and production • Among seller-employees • Lack of most recent knowledge

5.1 Further Research

There are a few potential topics for future research. This study focuses on only one case company making the findings only applying to this study. By studying multiple companies and their knowledge flows in customer interface could help generalizing conclusions of this study. Moreover, the role of CRM system rose up during the interviews and it would be interesting to see how much the supportive tools affect on. This thesis studied CKM and the knowledge flows during and interaction on company-level and it caused some trouble because the length of a customer relationship impacts on the type and amount of knowledge exchanged. There is a need for a study that examines CKM and knowledge flows on customer-level for longer time revealing, how different types of knowledge and the flows develop as a customer relationship ages.

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Interviews:

Management secretary. Elomatic Oy, 31.03.2011.
Senior design manager. Elomatic Oy, 31.03.2011.
Vice president A, Elomatic Oy, 31.03.2011.
Vice president B. Elomatic Oy, 31.03.2011.

APPENDICES

APPENDIX 1

Interview Questionnaire

NAME:

POSITION IN THE COMPANY:

YEARS WORKED IN THE COMPANY:

CKM:

1. What kind of knowledge is acquired about a customer and how much in an interaction with a customer?

2. What kind of knowledge is acquired from a customer and how much in an interaction with a customer?

3. What kinds of channels are used to acquire knowledge about and from a customer?

4. What kind of knowledge is given to a customer to support his/her decision-making and how much in an interaction with a customer?

5. Could you describe a typical interaction with a customer and streams of knowledge that it includes?

6. What kinds of channels are used to give knowledge to a customer?

7. What kinds of barriers occur in the flow of knowledge?

SUPPORTIVE SYSTEMS:

1. How much of the acquired knowledge is stored in supportive systems?

2. Could you describe supportive systems?

3. How much from acquired knowledge is possessed by you as tacit6 knowledge?

4. Could you describe a typical customer interaction/situation, in which tacit knowledge is being transferred?

5. How the acquired knowledge can be reached?

6. Is the knowledge accessible during an interaction with a single customer?

7. How the customer knowledge system is being updated?

8. Is the current system satisfactory for the sake of CKM, or should it be improved somehow? How?

THE QUALITY OF CUSTOMER SERVICE AND IMPROVEMENTS:

1. Could you describe your current customer service?

2. What kinds of problems you have faced in the current customer service?

3. How the acquired customer knowledge is being utilized in the customer service?

4. How the acquired customer knowledge could be utilized better in the customer service?

5. Are there any barriers in the flow of acquired customer knowledge and how these barriers affect on the quality of customer service?

6. How the quality of customer service can be improved by using the acquired customer knowledge?

APPENDIX 2

Interviews 31.03.2011

1. interview:

Senior design manager
Years in the company: 12 years
Duration of interview**:** 50:09

2. interview:

Vice president A
Years in the company: 27 years

The vice president started his career in Raisio Yhtymä and later as a result of a merger with Elomatic he became employee of Elomatic.

Duration of interview**:** 26:12

3. interview:

Management secretary
Years in the company: 6 years and in current position 2 years.

Duration: 39:12

4. interview:

Vice president B
Years in the company: 18 years.

Duration: 49:29