LUT School of Business and Management

Bachelor's thesis

International Business

A Case Study of Customer Knowledge Management in Electronic Business

Tapaustutkimus asiakastietämyksen hallinnasta sähköisessä liiketoiminnassa

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06.01.2019

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ABSTRACT

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Title: A Case Study of Customer Knowledge Management in Electronic Business

School: School of Business and Management

Degree programme: Business Administration / International Business

Supervisor: Jukka-Pekka Bergman

Keywords: Customer Knowledge Management, CKM

                                   Customer Relationship Management, CRM

                                   Knowledge Management, KM, Electronic Business

The purpose of this bachelor's thesis is to explain how an organization can manage customer knowledge in electronic business. The intention is to build a framework for CKM by investigating the key processes and their measures related to the context of electronic business. At the same time, opportunities and challenges of CKM in electronic business are highlighted to deliver a proper understanding of the phenomenon.

To answer the research question, a literature review has been conducted to build a foundation for empirical research. In this research, the literature review is a summarization of different academic findings related to the theories of KM, CRM and CKM. The empirical research uses qualitative data collection method of semi-structured interviews and participant observations in case study settings. The review and analyzation of previous literature and new empirical data are conducted in separate sections, and after they are reflected with each other to cumulate findings together.

The analysis of theoretical and empirical evidence exposed that an organization can manage customer knowledge in electronic business by implementing customer-centered technologies and functional departments that embrace the processes of customer data acquisition, customer knowledge generation and customer knowledge deployment. A constant cycle of these processes, where tacit and explicit customer knowledge interact, is a requirement due to the reason that customer knowledge has a dynamic character.

TIIVISTELMÄ

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Tutkielman nimi:	Tapaustutkimus asiakastietämyksen hallinnasta sähköisessä liiketoiminnassa
Akateeminen yksikkö:	School of Business and Management
Koulutusohjelma:	Kauppatiede / Kansainvälinen liiketoiminta
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Hakusanat:	Asiakastietämyksen hallinta, CKM, Asiakkuuksien hallinta, CRM Tietojohtaminen, KM, Sähköinen liiketoiminta

Tämän kandidaatintutkielman päämääränä on selittää miten organisaatio voi hallita asiakastietämystä sähköisessä liiketoiminnassa. Tarkoituksena on luoda puitteet asiakastietämyksen johtamiselle tutkimalla keskeisiä prosesseja ja niihin liittyviä toimenpiteitä sähköisen liiketoiminnan asiayhteydessä. Samanaikaisesti tarkoituksena on korostaa asiakastietämyksen hallinnan mahdollisuuksia ja haasteita sähköisessä liiketoiminnassa, jotta ilmiöstä saadaan kokonaisvaltainen ymmärrys.

Tutkimuskysymykseen on pyritty vastaamaan suorittamalla kirjallisuuskatsaus, joka on luonut samalla perustan empiiriselle tutkimukselle. Tässä tutkielmassa kirjallisuuskatsaus on käsittää yhteenvedon tietojohtamiseen, asiakkuuksien ja asiakastietämyksen hallintaan liittyvistä teorioista. Empiirinen tutkimus käyttää hyväkseen kvalitatiivista tutkimusaineistonkeruumenetelmää, joka sisältää semi-strukturoituja haastatteluja ja osallistuvaa havainnointia. Tutkimus on toteutettu tapaustutkimuksena. Erillisten tarkastelujen ja analysoinnin jälkeen, teoreettinen ja empiirinen tutkimusaineisto heijastetaan toisiinsa.

Teoreettisen ja empiirisen tutkimusaineiston perusteella organisaatio voi hallita asiakastietämystä sähköisessä liiketoiminnassa panemalla täytäntöön asiakaskeskeisiä teknologioita ja toiminnallisia osastoja, jotka tukevat asiakasdatan hankintaa, asiakastietämyksen tuottamista ja käyttöönottoa. Näiden prosessien jatkuva toteuttaminen, jossa hiljainen ja eksplisitiivinen asiakastietämys ovat vuorovaikutuksessa keskenään, on tärkeää asiakastietämyksen dynaamisen luonteen vuoksi.

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1. INTRODUCTION

Due to the development and excessive use of the Internet, electronic business (e-business) has become a prominent phenomenon amongst organizations in all levels and industries within the past few years. According to the statistics by Statista (2018) approximately 4,1 billion people are using Internet on a daily basis. Considering that the human population of the world is 7,6 billion (Kaneda, Greenbaum & Patierno, 2018, pp. 8), it is indeed an exceptional situation if a modern organization is not involved within this business movement where organizational activities are conducted in electronic means. Fundamentally, e-business is surrounded by the ideology that Information Technology (IT) provides platforms to interact, communicate as well as trade goods and services with customers via the Internet. This is revolutionary, especially for those organizations whose customer base is geographically scattered. To the greatest extent, e-business has provided an opportunity for organizations to collect customer data into their electronic repositories, which is the key of knowing customers in the electronic circumstances. (Rowley, 2002) Generally, it seems to be obvious that e-business is an important business investment in the modern days due to the reason that it enables an organization to interact, communicate and conduct trade with geographically scattered customer base, and most importantly acquire data considering these customers. However, the buzzling question is that how can these organizations transform acquired customer data into a source of competitive advantage?

As both academics and practitioners are alike concerned with the interesting question presented above, a topic of Customer Knowledge Management (CKM) has increased its attractiveness in the past few years. Especially, theoretical contributions demonstrate a common understanding that when data is transformed into a knowledge it becomes a source of competitive advantage because it is difficult to copy by the competitors. Indeed, when managed efficiently, customer knowledge supports customer relationships and engagement (Miake, Carvalho, Pinto & Graeml, 2018; Khodakarami & Chan, 2014; Sedighi, Mokfi & Golrizgashti, 2012; Gibbert, Leibold & Probst, 2002), research and development, innovation as well as facilitates emerging market opportunities (Jiebing, Bin & Yongjiang 2013; Fidel, Schlesinger, Cervera, 2015; Gibbert, et al., 2002). One can understand the importance of customer knowledge and its management, but considering that customer knowledge is one of the most complicated types of knowledge as it is received from multiple sources, it may have a contextual meaning, it is dynamic, and often tactic as well as dispersed and changes rapidly (Davenport & Klahr, 1998), it is not an astonishment that organizations experience challenges to manage this complexity. Specifically, the case organization of this bachelor's thesis is experiencing challenges with the

same issue in the e-business environment, and therefore it is safe to assert that further academic research is needed for better understanding of the CKM phenomenon in e-business.

1.1 Literature review

Upon the collection of the literature, it became apparent that all of the reviewed empirically observed papers associating with the customer knowledge and its management, mention the concepts of Knowledge Management (KM) and Customer Relationships Management (CRM) in some level. Therefore, it was essential to summarize, integrate and cumulate together different academic findings from these fields to create a consistent knowledge background for CKM. The literature research of KM and CRM indicated that both research areas have been popular themes for many years. As an example, when searching from Emerald Journals database with the key word ''customer relationship management'' in abstract, it shows 2076 results. For the key term ''knowledge management'' 8983 results were found. In comparison, only 846 researches resulted when a key word ''customer knowledge management'' was inserted on the search field, which indicates that CKM is more of an upcoming phenomenon that requires more investigation.

Regarding knowledge management, academic interest towards the concept first started in the late 1990s when knowledge was recognized as one of the key success factors to gain competitive advantage (Wiig, 1997; Rollins & Halinen, 2005). The perception of knowledge itself has been under debate since the ancient Greeks (Alavi & Leidner, 2001). As noted, KM is a relatively attractive research area, which also means that there exists a tremendous amount of frameworks describing the concept. Throughout the literature review process, it was quite challenging and time-consuming to perceive a comprehensive understanding of the phenomenon. More than that, it required number of days to contribute a common understanding of the term ''knowledge'' itself. However, researches by Schubert, Lincke & Schmid (1998), McQueen (1998), Nonaka (1994), Nonaka & Noboru (1998), Nonaka & Toyama, (2003), Alavi & Leidner (2001), Davenport & Laurence (1998) administrated suitable perspectives to overcome this challenge. Especially, the works by Nonaka (1994), Nonaka & Noboru (1998), Nonaka & Toyama, (2003) investigating knowledge-creating theory indicate to be influential studies and potentially a guideline for customer knowledge creation which is why these studies are investigated and explained in a closer look in this research project.

CRM theory has been in the spotlight since the mid-1990s (Payne & Frow, 2005). A significant problem found from the CRM literature was that different authors have presented different perspectives for CRM, which makes the research field fragmented. One of the reasons for this seems to be that the concept is developed by researchers within different academic backgrounds. In the path of going towards a common understanding of the phenomenon, professors Adrian Payne and Pennie Frow conducted a research ''*A Strategic Framework for Customer Relationship Management*'' (2005), which can be seen as one of the most remarkable researches dealing with the conceptualization of CRM. In fact, their research can be recognized as a turning point in the modern thinking where CRM is seen from a more strategic and holistic perspective. For instance, many other researchers such as Buttle & Iriana (2006) and Kumar & Reinartz (2012) have been influenced by Payne and Frow's work and explored the perception in a closer detail. Thus, this perception of CRM is seen important to illustrate in order to gain better understanding of the CKM phenomenon.

Different academics such as Rollins & Halinen (2005) and Gibbert, et al. (2002) have suggested that KM and CRM principles should be integrated together to create synergies for CKM. When observing the CKM literature in a closer detail, it shows indeed many relatable researches that have examined different aspects of KM and CRM to combine them together as one. Although there are plenty of researchers embedding KM together with CRM, there does not exist a common framework for CKM. This is because many of the researchers have perceived both KM and CRM approaches in different ways, which is not surprising considering that for instance the modern CRM theory was formulated in the current 21st century. Moreover, it is left to be understood what kind of processes need to occur and how these processes are supported in the e-business environment. However, among the available literature (e.g. Sedighi, et al., 2012; Khodakarami & Chan, 2014; Miake, et al., 2018), one can identify some common patterns in terms of CKM in e-business where customer data could be transformed into a customer knowledge by supporting KM processes with the CRM initiatives. Thus, it seems to be necessary to investigate this paradigm in further means and find out an appropriate way of managing customer knowledge in the e-business environment.

1.2 Research questions and limitations

Based on the discussion above, it is understood that customer knowledge and its management is important for organizations to stay competitive in the e-business environment. Also, it is evident that the literature does not present a common framework for CKM in the e-business environment. Furthermore, the case organization of this research project is struggling with the topic of this research. Therefore, the objective of this thesis is to explain how the case organization can manage customer knowledge in the e-business. Thus, the process of searching answer for this issue will be based on one main research question:

''How can an organization manage customer knowledge in electronic business?''

A better understanding of the phenomenon of this research project can be achieved by examining the main research question with the following sub-questions through theoretical and empirical research:

''What are the key processes of customer knowledge management and their measures in the context of electronic business?''

''What are the opportunities and challenges of customer knowledge management in electronic business?''

The first sub-question is formulated to explain what kind of processes and measures must occur to manage customer knowledge in the e-business environment. The second sub-question attempts to fulfil the paradigm by finding opportunities and challenges from the literature and empirical research related to the management of customer knowledge in the e-business environment.

Regarding the limitations of this study, the purpose is to explore the mentioned practices of customer knowledge management in the Business-to-Consumer (B2C) context. Thus, customer refers to end-consumer. Furthermore, this research project is conducted according to the interest of the case organization, which is operating business in consumer goods and services industry related to cooking. Thus, this research project is particularly limited to explain the phenomenon in their industry, and therefore the result cannot be necessarily reflected with other industries.

1.3 Key concepts

The key concepts of this research project are the following:

Knowledge refers to a mix of experience, values, contextual information and expert insight (Davenport & Laurence, 1998) that is created by turning tacit knowledge into explicit knowledge and the other way around. Fundamentally, this means that **Knowledge Management** is about encouraging employees to transcribe their experiences, values and insights about the organization and its environment into contextual information that can be transferred into knowledge-repositories, and where the new explicit knowledge is combined with existing explicit knowledge. When employees asses the knowledge-repository again, they can make valuable conclusions out of the new organizational explicit knowledge and create new personal tacit knowledge based on their experiences, values and expert insights. (Nonaka, 1994; Nonaka & Noboru, 1998 and Nonaka & Toyama, 2003)

Customer Relationship Management (CRM) refers to a strategic management approach that attempts to create value for customers and build long-term relationships with them. CRM strategy consists of cross-functional processes that are supported with CRM technology. CRM strategy consists of three types of implementations: (1) Strategic CRM, (2) Operational CRM and (3) Analytical CRM. Strategic CRM focuses to create a customer-centered strategy for the organization and create value for the customers. Operational CRM transforms the outputs of Strategic CRM into value-adding activities including implementations in functional teams that can deliver value to the customer with the support of Operational CRM technologies and systems. Analytical CRM supports both Strategic and Operational CRM by collecting, collating and disseminating customer information or data throughout the organization. (Payne & Frow, 2005; Buttle & Iriana, 2006)

Customer Knowledge Management (CKM) refers to an integrated management theory of KM and CRM that attempts to collaborate with customers for joint value creation. Fundamentally, this means that a customer-centered business strategy guides an organization to create knowledge sharing platforms and processes that encourage employees to acquire customer data as well as generate and deploy customer knowledge in order to support decision-making in value creating activities. (Rollins & Halinen, 2005; Sedighi, et al., 2012; Khodakarami & Chan, 2014; Miake, et al., 2018) The superior initiative of CKM is to enable flow of **Customer Knowledge** that consists of knowledge about, from and for customers. Knowledge about

customers considers the ideas, thoughts, and information that customers hand out to the organization during the interactions. Knowledge about customers refers to customer's demographic, psychographic and behavioural variables which are accumulated to understand the customers' preferences to serve them in a personalized way. Knowledge for customers is accumulated knowledge from the organization to support the customers. (Desouza & Yukika, 2005; Salomann, Dous, Kolbe & Brenner, 2005)

1.4 Research structure

This research project is structured in the following way: After the introduction chapter follows a theoretical section where different themes related to CKM are conceptualized. This chapter aims to discuss the themes in terms of what we already know and build a theoretical framework which creates a basis for the empirical section. Before the empirical section, methodology is presented to describe what measures took place in terms of finding empirical evidence considering the theoretical framework. Thus, the empirical chapter provides deeper insights on how the theory applies to a real-life situation. After the phenomenon has been observed in theoretical and empirical means, the research project continues to discover opportunities and challenges of CKM in e-business by reflecting theoretical and empirical findings related to the research topic. Finally, the findings and conclusions of this research project is presented in the last chapter. Additionally, future research topics are presented.

2. CUSTOMER KNOWLEDGE MANAGEMENT IN ELETRONIC BUSINESS

This chapter presents the findings from the former academic writings related to KM, CRM and CKM in which this research project builds on. For the purposes of this research project, it is necessary to provide brief conceptualizations of KM and CRM theories as they create a basis for the CKM approach. After the presentation of the KM and CRM theories, this chapter continues to integrate them and distinguish the notion of CKM. To summarize the findings and create a comprehensive understanding of the phenomenon, a theoretical framework is formed in the last section of this chapter.

2.1 Knowledge Management (KM)

Knowledge is not only a summarization of perceived, discovered and learned understanding, but also an object that is stored in the repositories of electronic communications (McQueen,1998, pp. 610). Fundamentally, this means that knowledge can be either tacit or explicit. Nonaka (1994) explains that tacit knowledge is personal knowledge that can be shared only through communication between individuals while explicit knowledge is codified knowledge that can be transferred in systematic language. Thus, explicit knowledge can be both individual or collective depending how it is stored. The literature review indicated that explicit knowledge can for instance be data. According to, Davenport & Laurence (1998) data is a raw material which is captured, organized and stored from an electronic source. When data is processed in a meaningful way, it becomes information. Knowledge is all about understanding the provided information. In this research, the terms ''data'' and ''information'' are used interchangeably although there may be differences regarding the definitions. It is also seen that explicit knowledge is data that is stored in a repository. Furthermore, the authors define knowledge as *''a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information''* (Davenport & Laurence, 1998), which is also used to define knowledge in this research project. According to this perception, knowledge is applied in the mind of an individual and becomes embedded in documents, repositories as well as in organizational routines, processes, practices and norms. Thus, organizations should attempt to make knowledge visible in the organization, to build knowledge-intensive cultures that encourage employees to share, seek and offer knowledge as well as to build IT infrastructure that offers tools for interactions and collaborations.

Wiig (1997) argues that organizations must manage knowledge by creating, maintaining and leveraging knowledge inside the organization. Nonaka (1994) and Nonaka & Toyama (2003) presents that knowledge can be created, maintained and leveraged by following a synthesizing process of knowledge; Socialization, Externalization, Combination and Internationalization (SECI) where tacit and explicit knowledge interact with each other in a continuous movement. Shown in Figure 1, the SECI model suggest that employees must first interact with each other to create new tacit knowledge. Individuals can acquire tacit knowledge by communicating verbally or without a language, meaning that the key to gain new tacit knowledge is through an experience with other employees. Thus, the socialization process is all about observing, interacting, discussing and analyzing on what is happening within the organization and its environment. After the socialization process, the next phase is to turn the new tacit knowledge into an explicit knowledge, meaning that employees are required to articulate and translate their tacit knowledge into knowledge repositories through sorting, adding, recategorizing and re-contextualizing, for instance with the help of computers. The aim of the externalization process is to create new explicit knowledge into the organization that can be combined with the existing explicit knowledge in the knowledge repositories in the combination process. Consequently, the combination process aims to combine new and existing explicit knowledge together in a way that new organizational explicit knowledge is created and disseminated throughout the organization. When disseminated in the organization, the employees may learn and acquire new tacit knowledge in practice out of this explicit knowledge. Thus, internationalization process is all about making valuable conclusions out of the organizational explicit knowledge, which contributes to a new tacit knowledge. After the internationalization process, the model continues to repeat the same cycle presented in the SECI model.
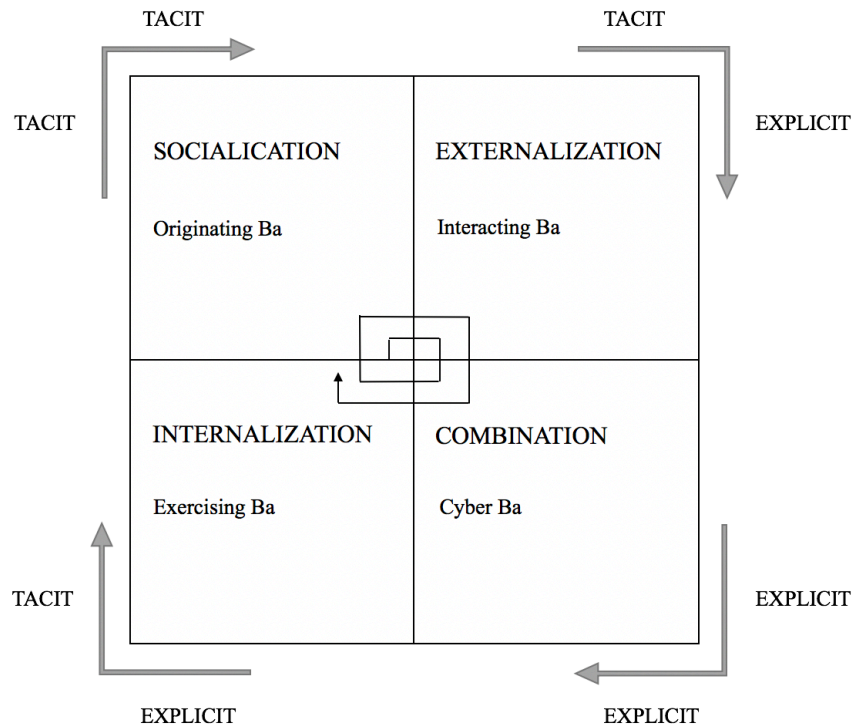
TACIT   TACIT

TACIT   EXPLICIT

SOCIALICATION   EXTERNALIZATION

Originating Ba   Interacting Ba

INTERNALIZATION   COMBINATION

Exercising Ba   Cyber Ba

TACIT   EXPLICIT

EXPLICIT   EXPLICIT

Figure 1. SECI-model (Nonaka, 1994; Nonaka & Toyama, 2003; Nonaka & Noboru, 1998).

Regarding the Figure 1, Nonaka (1998) finds that knowledge also requires physical context to be created, meaning that knowledge is created in situated action. Thus, it is necessary to establish a common place for knowledge creation – Ba. The term ''Ba'' is originated from the Japanese language and refers to the foundation of knowledge creation: to a way organizing knowledge to have a certain meaning. Each of the four SECI processes can be enchased and supported by designing Ba for them. The socialization process is supported by originating Ba, externalization by interacting Ba, combination by cyber Ba and internationalization by exercising Ba. Moreover, each Ba supports the transformation of knowledge within the interaction of tacit and explicit knowledge. Originating Ba supports the socialization process and refers to the world where employees share their feelings, emotions, experiences and mental modes. Thus, originating Ba compromises the willingness of sharing. (Nonaka & Noboru, 1998). For this Ba, physical contacts are essential, but in the modern days, knowledge can also be created with the support of IT, such as emails and other communication technologies. (Alavi & Leidner, 2001). Interacting Ba supports the externalization process and refers to the place of dialogue where employees may interact with each other. This Ba can be considered more consciously contracted than originated Ba. Moreover, interacting Ba may also be supported by IT that for instance enchase the communication possibilities between the employees. (Nonaka & Noboru,

1998; Alavi & Leidner, 2001) Cyber Ba supports the combination mode and refers to the virtual space of interactions in the electronic repositories (Nonaka & Noboru, 1998). The combination of explicit knowledge is supported also with IT systems, such repositories, software agents, data warehousing, data mining and documents which automate the combination process (Alavi & Leidner, 2001). Exercising Ba supports the internationalization process and refers world where individuals are actively and continuously learning by the new disseminated explicit knowledge. The more explicit knowledge is used, the more enchased the internationalization process will be. (Nonaka & Noboru, 1998)

2.2 Customer Relationship Management (CRM)

While KM attempts to maintain knowledge creation inside the organization, CRM aims to develop and evolve customer relationships by identifying, creating, building and shaping linkages and relationships with existing and potential shareholders (Srivastava, Shervani & Fahey, 1999), to learn about customer behavior and reflect the outcome with organizational behavior (Peppers, Rogers & Dorf, 1999), to provide IT systems for organizations that support the relationship building (Shoemaker, 2001) as wells as to enable organizations to invest their assets to valuable customers and minimize their investments with the nonvaluable ones (Verhoef & Donkers, 2001), to achieve customer-centered mindset (Hasan, 2003; Piccoli, Connor, Capaccioli & Alvarez, 2003) as well as to develop and leverage market intelligence for the purpose of building and maintaining profitable customer relationships (Zablah, Bellenger & Johnston 2004). Thus, CRM can be seen more as a strategy that attempts to build long-term customer relationships, to retain customers and make them loyal towards to the organization.

Shown in Figure 2, CRM is a strategic and holistic management theory that combines relationship marketing strategies and IT together to exhibit profitable and long-term relationships with customers by creating value for them. Payne & Frow (2005) argue that this requires an organization to implement five interrelated cross-functional processes: (1) strategy development process, (2) value creation process, (3) multi-channel integration process, (4) information management process, and (5) performance management process, that are enabled through IT. Buttle & Iriana (2006) have submitted four of these processes under the forms of CRM; Strategic, Operational, and Analytical. The Strategic CRM compromises the strategy development process and value creation process. The Operational CRM consists of the multi-channel integration process, and the Analytical CRM refers to the information management process. The arrows present

interaction and feedback between different processes. This means that the Strategic CRM guides the Operational CRM based on the Analytical CRM. Overall, Analytical CRM supports all of the other processes by providing insights about customers to the other processes. The performance assessment process shows the outcome of these three types of CRM.
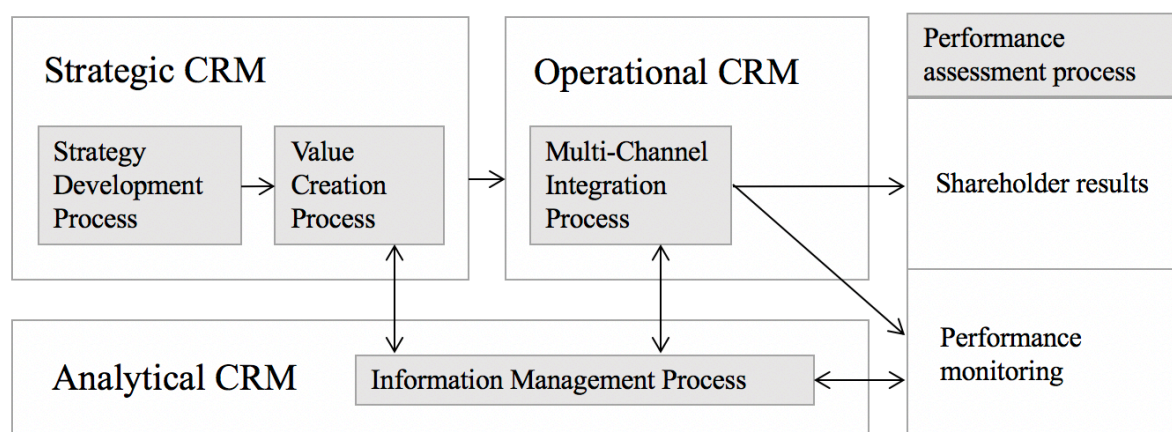

Figure 2. Customer Relationship Management (Payne & Frow, 2005; Buttle & Iriana, 2006).

Strategic CRM focuses on creating a business strategy and customer strategy, which guides the organization in CRM related activities. Furthermore, it guides an organization to create value for customers. The value creation process aims to determine what value the organization can provide to its customers, what value the organization receives from its customers. When managing this value exchange determination, an organization can maximize the lifetime value in their customer segments that consist of appropriate customers. (Payne & Frow, 2005; Buttle & Iriana, 2006) Strategic CRM should also attempt to provide solutions that enchase the interactions with the customers. Fundamentally, this means that the organization must implement a set of activities, such as IT systems, that provide unique view of the customers across all customer interfaces. (Kumar & Reinartz, 2012, pp. 35-36) Thus, strategic CRM is a decision-making activity.

Operational CRM refers to a process that aims to transform the outputs of the Strategic CRM into value-adding activities with customers by implementing a combination of different interaction channels. These channels may include for instance, stores, websites or web shops or

mobile applications. (Payne & Frow, 2005) Furthermore, Operational CRM attempts to manage customer interactions with the support of IT systems such as service automation, marketing automation and salesforce automation systems that can personalize relationships with customers. Service automation systems allow organization to automate and enchase service for customers, marketing automation systems support the marketing programs and sales force automation supports the selling activities. (Buttle & Iriana, 2006) Thus, Operational CRM is an activity that delivers value for customers through efficient front-office processes. Some researchers such as Cuthbertson & Messenger (2008) and Alavi, Ahuja & Medury (2012) demonstrate also that there exists collaborative CRM tools or systems. However, in this research project these tools and systems are seen as a part of the Operational CRM because one can notice similarities between the approaches.

Analytical CRM refers to the information management process which attempts to collect, collate and use customer information from customer interfaces (Payne & Frow, 2005). Analytical CRM consists of different IT systems including databases and analytical tools that support the strategy development process and value creation process by providing insights about market and customer characteristics. When customer data is accumulated, stored, organized, interpreted, distributed and exploited, the insights of customers delivered to Operational CRM systems where employees may profile customers and understand them in an efficient manner. This means that Analytical CRM consists of project that attempt to deliver better understanding of the customers' needs, behaviors and expectations. (Buttle & Iriana, 2006) Furthermore, Analytical CRM tools are the key to share relevant customer data throughout the organization as they enable integration of different channels (Payne & Frow, 2005). Thus, Analytical CRM is an activity that aims to adopt the technologies that are the most appropriate to capture and interpret data for Strategic CRM and Operational CRM processes.

2.3 Customer Knowledge Management (CKM)

When looking at the KM and CRM approaches, both offer and lack certain variables in terms of efficient management of customer knowledge in e-business. For instance, CRM theory offers strategic tools and cross-functional processes to construct customer-centred environment that determine the need for customer knowledge but does not explain how customer knowledge can actually be created and maintained in this environment. At the same time, KM offers procedures to create and maintain knowledge but lacks a comprehensive need determination and customer-

centred perspective. Thus, integrating these two management theories together could create marvellous synergies for CKM. For instance, Gibbert, et al. (2002) discuss the concept of CKM in the light of KM and CRM theories, and assert the combination of KM and CRM could create value for the organization beyond the total value of KM and CRM. Table 1 shows Gibbert, et al.'s (2002) thoughts on how combination of CRM and KM create synergies that support management of customer knowledge in the organization

Table 1: CKM versus KM and CRM (Gibbert, et al., 2002).

	KM	CRM	CKM
Knowledge sought in	Employee, team, company, network of companies	Customer Database	Customer experience, creativity, and (dis)satisfaction with products/services
Axioms	"If only we knew what we know"	"Retention is cheaper than acquisition"	"If only we knew what our customers know"
Rationale	Unlock and integrate employees' knowledge about customers, sales processes and R&D.	Mining knowledge about the customer in company's databases	Gaining knowledge directly from the customer, as well as sharing and expanding this knowledge
Objectives	Efficiency gains, cost saving and avoidance of re-inventing the wheel.	Customer base nurturing, maintaining company's customer base.	Collaboration with customers for joint value creation.
Metrics	Performance against budget.	Performance in terms of customer satisfaction and loyalty.	Performance against competitors in innovation and growth, contribution to customer success.
Benefits	Customer satisfaction.	Customer retention.	Customer success, innovation, organizational learning.
Recipient of Incentives	Employee.	Customer.	Customer.
Role of customer	Passive, recipient of product.	Captive, tied to product / service by loyalty schemes.	Active, partner in value-creation process.
Corporate role	Encourage employees to share their knowledge with their colleagues.	Build lasting relationships with customers.	Emancipate customers from passive recipients of products to active co-creators of value.

Most importantly, Gibbert, et al. (2002) find that KM and CRM together enables an organization to develop customer-specific strategies that contribute to a deep understanding and insight of customers including their needs and preferences. Fundamentally, this is because CKM guides an organization to create knowledge sharing platforms and processes between organizations

and their customers, meaning that the knowledge exchange becomes a two-way phenomenon. Thus, customers become as active value co-creators. The ideology of CKM stresses that the more insight and understanding – customer knowledge – the organization has, the better performance it has compared to its competitors. This is simply due to the reason that customer knowledge generates innovation and growth for the organization which eventually contributes to a customer success, which is perceived as the key element of competitive advantage.

Furthermore, Gibbert, et al. (2002) assert that in CKM customer knowledge is sought from customer experience, creativity and feedback. Rollins & Halinen (2005) agree but specifies that customer knowledge is sought from customer interfaces during customer communications or interactions. During these events, the employees and customers are encouraged to exchange knowledge about, from and for customers. According to Desouza & Yukika (2005) the knowledge from, about and for can be defined the following ways:

(1) ***Knowledge from customers*** considers the ideas, thoughts, and information that customers hand out to the organization during the interactions.

(2) *Knowledge about customers* refers to customer's demographic, psychographic and behavioural variables which are accumulated to understand the customers' preferences to serve them in a personalized way.

(3) *Knowledge for customers* is accumulated knowledge from the organization to support the customers. (Desouza & Yukika, 2005)

Besides Desouza & Yukika (2005), also Salomann, et al. (2005) argue that the superior initiative of CKM is to enable the utilization of these different kinds of customer knowledge within the organization and between the organization and its customers. Moreover, Salomann, et al., (2005) observe that this initiative can be reached by aligning KM activities into the CRM practices which enables the knowledge to flow between these three types of customer knowledge. Furthermore, Rollins & Halinen (2005) relates to this agenda and finds that CKM is: ''*...an area of management where KM instruments and procedures are applied to support the exchange of customer knowledge within an organization and between an organization and its customers, and where customer knowledge is used to manage customer relationships, to improve CRM processes...*'' (Rollins & Halinen, 2005). To be more specific Rollins & Halinen (2005) describe KM as the service provider and CRM as the service buyer, meaning that KM

tools and procurers should be integrated into the CRM which determines what knowledge is needed, who generates it and how it is deployed in the customer facing functions.

Based on the statements by Gibbert, et al. (2002), Salomann, et al. (2005), Desouza & Yukika, (2005) and Rollins & Halinen (2005), this research project perceives that CKM is about embedding KM processes into CRM mechanism to ensure a flow of customer knowledge throughout the organization and between its customers. Due to the reason that the literature does not present a widely accepted framework where KM and CRM frameworks are incorporated together and composed with e-business phenomenon, it is necessary to build a new framework for CKM based on the KM and CRM frameworks that were presented in the earlier chapters. Thus, SECI-model's processes of socialization, externalization, combination and internalization are integrated with the CRM mechanism consisting of Operational CRM, Analytical CRM and Strategic CRM. In this research project, the works by Sedighi, et al. (2012), Khodakarami & Chan (2014) and Miake, et al. (2018) are highlighted due to the reason that they present common patterns in terms of KM and CRM integration. The findings of these academic papers indicate that an organization must first acquire customer data from customer interfaces through socialization and externalization or only through externalization with the support of Operational CRM initiatives. Thus, the first key process is customer data acquisition. The next key process is to generate customer knowledge with the support of Analytical CRM initiatives, meaning that all acquired customer data is combined, analysed and disseminated throughout the organization with the support of IT. Finally, when organization has generated new explicit customer knowledge, it may be internalized. The internalization is a part of the Strategic CRM initiative where customer knowledge is deployed into value-creating activities. Next, this research projects seeks to observe these key processes and the measures the organization takes in each process.

2.3.1 Customer data acquisition

Customer data acquisition is an important phase of CKM, because without customer data it is impossible to have customer knowledge in the e-business environment (Rowley, 2002). Thus, an organization must establish relevant initiatives that allow an organization to acquire customer data. The theoretical findings by Kohdakarami & Yolande (2014) and Miake, et al. (2018) indicate that organizations may acquire customer data through verbal communications (socialization) with customers in e-business. Even though verbal communication opportunities

may be limited in the e-business environment, the authors argue that verbal communications are the key to provide product information and other advices for the customers (knowledge for customers), collect ideas and thoughts from them (knowledge from customers) and learn about their needs and preferences as well as expectations (knowledge about customers). Thus, socialization with customers is a knowledge exchange activity that provides an advantage to gain tacit knowledge about and from the customers. To communicate with customers in face-to-face circumstances, an organization must implement Operational CRM initiatives, such as customer service. As tacit customer knowledge is difficult to transfer, it must be externalized. To transcribe the tacit customer knowledge into a structured form, an organization must implement Operational CRM systems, such as service automation systems that can support the customer data acquisition. The service automation systems can consist of virtual communication tools, such as chats and call centre applications that do not only ease the communication with customers, but also automate the acquisition of customer data.

Organizations can also acquire customer data in non-verbal interactions in e-business, which requires a set of electronic interfaces on the Internet that are supported with different IT tools. When customer data is acquired only with the help of IT tools over the Internet, it is automatically transcribed (externalized) into a customer data. (Kohdakarami & Yolande, 2014; Miake, et al., 2018) Non-verbal interactions can occur for instance through websites and interactive marketing tools such as search portals, surveys and product catalogues. (Smith & McKeen, 2005; Jiebing et. Al. 2013; Kohdakarami & Yolande, 2014; Miake, et al., 2018) To support the customer data acquisition on these platforms, organization must implement Operational CRM systems such as marketing automation and salesforce automation systems that act as customer data collectors. (Kohdakarami & Yolande, 2014; Miake, et al., 2018). When implementing these types of tools and systems, organization may acquire knowledge about customers such as transaction data, product usage as well as behaviour and preference data in structured form during customers' engagement with the organization (Smith & McKeen, 2005; Kohdakarami & Yolande, 2014; Miake, et al., 2018) For instance, on websites, organization may collect customer's personal data during purchases or registrations, such as name, address, e-mail, credit card details. Having tools such as registration forms are also the key to acquire customer data in personal form on electronic interfaces and find out who customers truly are and what they want from the organization. This is because these tools allow an organization to integrate customers' engagement on different interfaces together and follow their behavior, actions and preferences during the entire journey of relationship that helps creating unique views of the customers. Even though, an organization can also acquire non-personal customer data for instance

on websites for statistical or informational purposes, it does not strengthen the profiles of individual customers. (Rowley, 2002) Therefore, non-personal customer data acquisition is excluded from the review.

2.3.2 *Customer knowledge generation*

Even though Operational CRM tools can be independently rich data banks and provide customer knowledge for the employees, they do not necessarily offer unique views of the customers if customer data is not received from other sources within the organization. For instance, it would be ideal if the service automation system would receive customer data from the marketing automation system and the other way around. Khodakarami & Chan, (2014) find that organizations must implement modern IT tools that can support the combination of different customer data sources in order to generate customer knowledge for the entire organization. Besides Khodakarami & Chan, (2014), also Sedighi, et al. (2012) and Miake, et al. (2018) finds that Analytical CRM tools and techniques offer an opportunity to aggregate different data sources together to the greatest extent. More precisely, these tools and techniques allow an organization to draw customer data from many sources into a common database where they can be analysed in a deeper level. When customer data is placed in the same database, such as a data warehouse, organizations may create an organizational memory and gain a deeper understanding behind the actions that customers have performed during the interactions. Moreover, it is also an opportunity to avoid misunderstanding of customers' needs and wants. Fundamentally, e-business organizations should always promote a common customer data repository because it makes sure that all relevant customer data accessible for further analyzation.

In terms of further analyzation, Khodakarami & Chan, (2014) and Miake, et al. (2018) finds that data mining is a suitable method to create explicit customer knowledge for the entire organization. Sedighi, et al. (2012) agrees, but discusses the data mining under the method of Knowledge Discovery from Databases (KDD), and states that it is a great analytical process to extract knowledge from raw data that resides in a single database. Shown in Figure 3, KDD is an intelligent, interactive, and iterative process of customer knowledge generation that consists of goal setting, data understanding, data pre-processing, exploratory analysis (EDA), data mining modelling, interpretation and evaluation, learning and model refinement as well as the deployment.
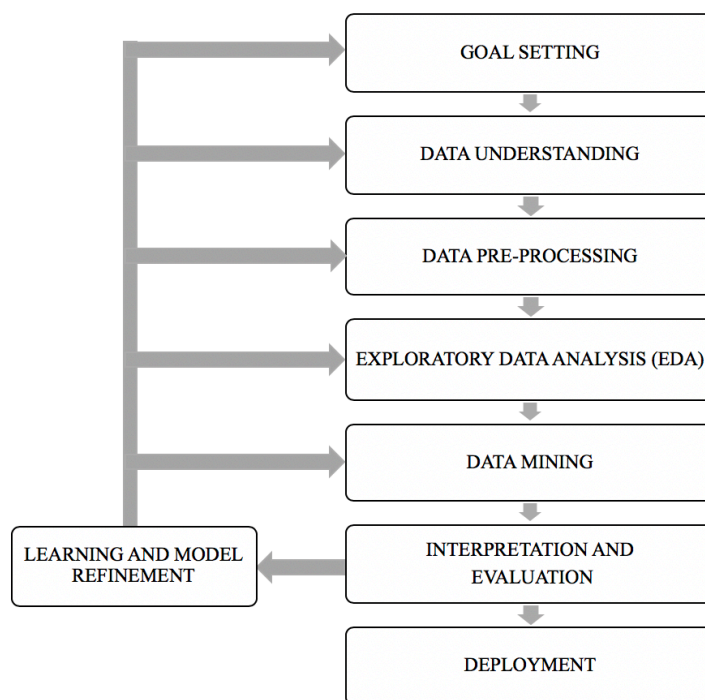
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                    ──────►│        GOAL SETTING         │
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                   │       ┌─────────────────────────────┐
                   ├──────►│     DATA PRE-PROCESSING      │
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                   ├──────►│ EXPLORATORY DATA ANALYSIS (EDA)│
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                   ├──────►│        DATA MINING          │
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       │ LEARNING AND MODEL    │◄─│   INTERPRETATION AND        │
       │    REFINEMENT         │  │      EVALUATION             │
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                                             ▼
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                          │        DEPLOYMENT           │
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Figure 3. Knowledge Discovery from Databases (Sedighi, et al., 2012).

In KDD, the goal setting is about understanding the purpose for data processing. When the organization has set up a goal, they must generate a comprehensive understanding of the customer data. After, the customer data must be pre-processed meaning that the customer data may be prepared for data mining by cleaning, integrating, transforming and reauctioning the data. The Exploratory Data Analysis (EDA) aims to explore data with statistical techniques for gaining brief relationships with variables. For instance, an organization may create statistical analysis on value attributes. Data mining is a deeper analysis of the customer data that may involve data associating, classification, clustering, prediction, sequence discovery and visualization of data to discover hidden patterns. Association attempts to find attributes and characteristics out of the customer data and combine them. Classification techniques such as neural networks, decision trees and regressions aim to predict whether the customer data is discrete or predefined. Clustering compromises grouping the customer data according to the similarities. Prediction is similar to classification, but in this case the classification occurs in numerical ways for instance with the support of neural networks or logistic model prediction. Sequence discovery is useful for instance to price forecasting and refers to the identification of associations or patterns that aim to generate sequences or to extract and report deviations or future trends. Visualization is

the graphical and schematic presentation of customer data that allows the organization to view complex patterns and relationships. The results from visualization provides knowledge for decision makers as they offer an opportunity to view the complex and hidden patterns in simple diagrams and figures, such as 2D and 3D graphs, hygraphs and SeeNet. (Sedighi, et al., 2012)

Overall, these data warehousing and data mining techniques are genuine opportunities that IT provides for the organization, and therefore it is evident that they are important measures to consider in e-business environment. Furthermore, Miake, et al., (2018) and Kohdakarami & Yolande (2014) finds that they should be complimented with other IT tools such as Online Analytical Processing (OLAP) tools support the performance and visualization of data mining modeling on data warehouses in CKM. More precisely, OLAP tools support the dissemination of new explicit customer knowledge by providing multi-dimensional views of the customer knowledge that can be used for customer data analysis and decision support activities. For instance, it is possible to connect OLAP servers to the Operational CRM systems to visualize customer knowledge in various ways such as charts, graphs, reports and tables, which increases the quality of decision-making processes. Eventually, it is important that the visualizations of explicit customer knowledge are disseminated to the Operational CRM systems which support functional departments in their day-to-day work in value creating activities (Sedighi, et al., 2012).

2.3.3 Customer knowledge deployment

Although Operational and Analytical CRM tools provide new organizational explicit customer knowledge, it also important that the employees make valuable conclusions out of it. Khodakarami & Chan (2014) explain that employees need to identify relevant explicit customer knowledge and create tacit customer knowledge by mixing the organizational explicit customer knowledge with their experiences. This new tacit customer knowledge can then be deployed into value-creating activates. Sedighi, et al. (2012) argue that customer knowledge deployment is part of the Strategic CRM, the end-result of organizational learning, that attempts to deliver value for customers by taking all the advantages of the provided explicit customer knowledge in decision-making processes. Thus, it can be argued that the customer knowledge deployment is the process where explicit customer knowledge is interpreted into a tacit customer knowledge which is utilized to improve performance in value-creating activities. Jiebing, et al. (2013) finds that improved performance in value-creating activities improves customer consumption

experiences that in turn increases organizational profitability. Thus, customer knowledge deployment is the accumulation of CKM that takes all the advantages of the previous processes.

Jiebing, et al. (2013) explain that one of the value-creating activities ensuring a better performance in terms of customer consumption experience is a product and service innovation or development where knowledge about and from customers can be utilized to customize and improve the quality of the products and services according to customers' needs and preferences. Fidel, et al. (2015) observes that customer knowledge is an important strategic resource in innovation and development processes because it helps to detect emerging market opportunities. Both Jiebing, et al. (2013) and Fidel, et al. (2015) argue that deploying customer knowledge into product and service innovation and development processes ensures that the organization is offering appropriate products and services for the current and potential customers, now and in the future. Consequently, an organization can decrease the cost in these processes by utilizing customer knowledge. Furthermore, Sedighi, et al. (2012) points out that utilizing customer knowledge in the innovation process can provide a competitive advantage for an organization that is competing in an unpredictable business environment. Thus, utilizing customer knowledge in these processes is incredibly important if the organization desires to differentiate themselves for the competitors.

Besides deploying customer knowledge into the innovation and development processes, knowledge about and from customers can be utilized to provide appropriate knowledge for the customers within the marketing, service and selling activities to ensure that the customers are enable to make purchase-decision as well as to assure that the customers have a good experience with the organization. (Jiebing, et al., 2013; Khodakarami & Chan, 2014; Miake, et al., 2018) For instance, segmentation, target customer analysis, direct marketing, complaints management, loyalty programs, one-to-one marketing, lifetime value analysis, market basket analysis value as well as up- and cross-selling are great examples of customer-centered activities where knowledge about and from customers can be utilized to deliver better value for customers and ensure an improved consumption experience. Moreover, when customer knowledge is deployed into the above-mentioned activities, an organization can become thoroughly a customer-centric entity. This is because knowledge about and from customers enable mass customization, one-to-one personalization and collaborative customer filtering (Jiebing, et al., 2013; Sedighi, et al., 2012), which then helps to target the right customers and segment offering, channels, frequency and content of the messages delivered to these customers (Miake, et al., 2018), as well as to provide the right support and recommendations to the customers according to their problems

related to the products and service (Khodakarami & Chan, 2014). Thus, it can be argued that customer knowledge is the key to reduce time and increase the quality in marketing, sales and service activities, and therefore it should be deployed into the activities besides innovation and development processes to ensure a superior consumption experience.

2.4 Theoretical framework

The theoretical framework, shown in Figure 4, illustrates the summarization of reviewed and presented literature. This research project perceives that CKM is an integrated management theory of KM and CRM that attempts to collaborate with customers for joint value creation. (Rollins & Halinen, 2005; Gibbert, et al., 2002), meaning that a customer-centered business strategy guides an organization to create knowledge sharing platforms and processes that enable the processes of customer data acquisition, customer knowledge generation and deployment (Kohdakarami & Yolande, 2014; Miake, et al., 2018; Sedighi, et al., 2012).
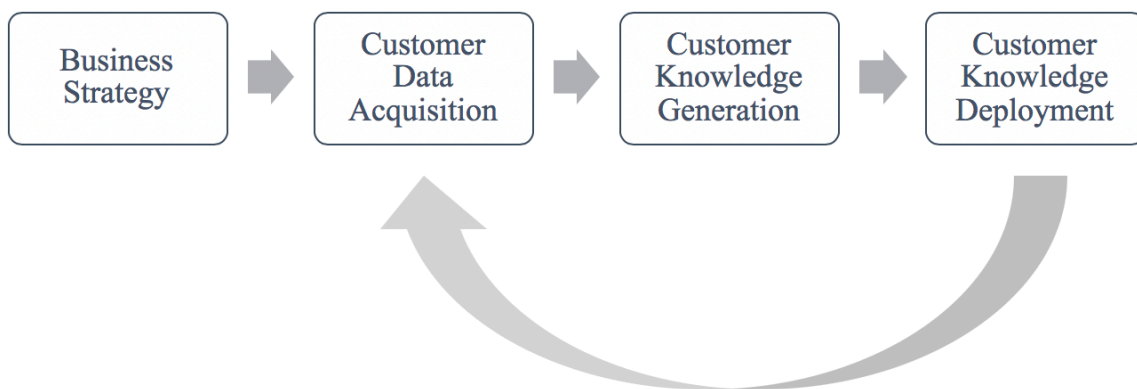

Figure 4. Theoretical framework

Regarding the processes shown in the theoretical framework in Figure 4, customer data acquisition is all about creating new explicit customer knowledge for the organization, while customer knowledge generation attempts to combine this new explicit knowledge with the existing customer knowledge. Customer knowledge deployment attempts to turn organizational explicit knowledge into a tacit customer knowledge and utilize that in value-creating activities with customers. To conduct these key processes and ensure exploitation of tacit and explicit customer knowledge, an organization must implement Operational and Analytical CRM initiatives.

Operational CRM consists of functional departments and technologies that support customer data acquisition and customer knowledge deployment. Analytical CRM also considers functional departments and technologies that support customer knowledge generation and deployment by collating, storing and organizing all the customer data from customer interfaces into a single database where the customer data can be analyzed in a deeper level, and distributed and exploited throughout the organization. As customer knowledge has a dynamic and rapidly changing character, an organization must ensure that these processes are conducted in a continuous movement. (Kohdakarami & Yolande, 2014; Miake, et al., 2018; Sedighi, et al., 2012)

3. METHODOLOGY

This chapter presents the methodological considerations used within this research project for empirical research. First, research design, purpose and strategy are introduced. In this section, also a brief introduction of the case organization is given which is important when explaining the data collection methods presented in the following section.

3.1 Research design, purpose and strategy

Due to the uncertainty of the research topic, the empirical section will follow qualitative method with explanatory purpose. According to Saunders, Lewis and Thornhill (2016, pp. 168, 176) qualitative research design is convenient when it is necessary to study meanings of the features, attributes and characteristics of the phenomenon with non-numerical data. Explanatory purpose is implemented when there is a need to study a situation or a problem in order to get a bigger picture of the phenomenon (Saunders, et al., 2016, pp. 176), which applies to this specific research project. Above the research design and purpose, a research strategy is needed to ensure coherence within the research project. Robert K. Yin, a social scientist, who has researched the case study theory in detail, argues that there are three different conditions which the researcher should take into consideration when choosing the right strategy;

1) the type of research question;

2) the degree on how much researcher is able to control the behavioral events;

3) the degree of focus on modern events as opposed to historical events. (Yin, 1994, pp. 4)

Because in this research project, the research question starts with ''how'' question, and the purpose is explanatory, Yin (1994, pp. 6) finds that this type of research surrounds by modern events where the researcher has only a little to no control at all of the behavioral events. Thus, a case study method is the most appropriate strategy for empirical research. A case study method is an empirical research strategy where the theory is tested in real-life settings. Moreover, this type of research strategy is excellent when the researcher has a desire to contribute to in-depth content and development of the theory. For these reasons, explaining the phenomenon

by researching the problem inside the case organization indicates to be the most appropriate research strategy in terms of empirical evidence.

In this research project, the case study is conducted in a multinational organization that has a well-known brand name and leads the sector in their industry related to consumers goods and service in cooking. The case organization itself was first founded in the United states of America (USA) where the parent company is still located, and which is also responsible of controlling the worldwide activities. The parent company has divided the geographic locations into three different organizations – the Americas, EMEA (Europe, Middle-East and Africa) and Asia Pacific. Each organization is responsible of the marketing and distribution of products and services in their subsidiaries. This means that each organization gives recommendations for marketing and distribution activities based on the decisions coming from the parent company. Nevertheless, it is always on the side of the individual subsidiaries to create their own programs in terms of distributing and marketing the products and services.

Due to the global presence of the organization and time limitations, it was necessary to limit empirical data collection into one organization. In this research, the focus is only on the EMEA organization which is controlled by the parent company in USA. This organization was chosen due to the reason that the researcher of this bachelor's thesis is employed in the Danish subsidiary which belongs into the EMEA organization. Thus, choosing the EMEA organization would provide the best and the most accurate results as well as be the most beneficial for the managers in the Danish subsidiary.

3.2 Data collection

Yin (1994, pp. 8) states that the researcher may use documents, artifacts, interviews and observations as empirical research evidence in case studies. In this research project, the interviews and observations indicated to be the best practices to observe the phenomenon in the case organization. Among the range of different interview and observation strategies, semi-structured interviews and participant observations were chosen. Next, these methods and the reasons for choosing them are explained in detail.

3.2.1 Semi-structured interviews

To collect empirical data inside the case organization, semi-structured interviews were chosen to its flexible characters, which could provide a possibility for the interviewees to come up with new topics which the interviewer was not aware of before. Furthermore, semi-structured interviews indicate to be the best interview method for explanatory research (Saunders, et al., 2016, pp. 391, 393). This was necessary not only because the topic of interest is a new phenomenon, but also because the resources for the interviews were limited in the case organization. This is because the case organization does not have a specialized department considering the research topic, such as a centralized consumer insight department. Thus, it seemed to be the most beneficial to choose one interviewee from the Danish subsidiary and one from the EMEA headquarters to get a bigger picture of the phenomenon.

Both of the suitable interviewees from these offices were first contacted and requested for an interview. The interviewees were informed that the interviews are recorded with Skype for Business recording tool and transcribed after into a Word-document. After giving a permission for an interview, GDPR documents were sent and signed before the interviews. The first interviewee was held to an EMEA Digital CRM Manager located in the headquarters of EMEA organization in Berlin. He was chosen due to the recommendations of the other managers in the Danish subsidiary to get an organization wide perspective as he is responsible of the topic of interest in the entire EMEA organization. Having already eight years of experience within the research field, both from the technical and functional perspectives, the interviewee exhibits a lot of expertise. In the current position, he is responsible of providing the right tools and helping the markets to execute their marketing and CRM programs. In more detail, he is responsible of the consumer data and reporting at the organization, meaning that he helps different countries to collect the data and make it accessible. Before the current position, he has worked closely with the topic of transforming data into information, building data warehouses, combining different data sources and coming up with reporting and knowledge sharing solutions. The second interview was held to a Digital CRM Brand Manager located in the Danish subsidiary and was chosen to bring more detail to the phenomenon in the case organization. He has been working with the same field for 5 years and exhibited the most expertise on the subject within the Danish subsidiary. Currently he is responsible of all of the digital aspects in the Danish office.

3.2.2 Participant observations

After the analyzation of empirical data from the semi-structured interviews, it became evident that observations were needed to complement the findings from the interviews. According to Saunders, et al. (2016, pp. 361) observation is a suitable data collection method to complement the findings from the interviews if the research question is concerned with a phenomenon related to human actions. For this research, it was evident to discover what measures the people in the organization take to support customer knowledge flow in the organization. The observation was also a natural method of data collection due to the reason that the researcher of this research project is working at the case organization. Therefore, the observation was conducted as a participant observation. In this type of observation, the researcher is a member of the organization and therefore is allowed to participate the phenomenon, which then enables the researcher to share the experiences according to the phenomenon (Saunders, et al., 2016, pp. 361).

Within this research project, the observant was participanting in the marketing and customer service activities in the context of end-consumers during the working hours in the Danish office. The observation was conducted during the entire timeline of this research project, but the actual documentation of observations was held after the interviews during the period of 27.11.2018 – 4.12.2018. In the customer service department, the empirical data was collected by doing the work itself whereas in the marketing department, the observant was sitting aside the marketing employees to observe what they are doing related to the research phenomenon. The participant observation was mainly conducted to support the findings related to the customer data acquisition and customer knowledge deployment as well as to understand better how customer data is being disseminated between different IT systems. During the participant observations, findings related to the research phenomenon were documented onto a notebook. The documentation were analysed during and after the observation to support the findings that became apparent during the interviews. In this research, the findings of the interviews may have affected to the results of the participant observations.

4. CASE STUDY FINDINGS

This chapter discusses and analyzes the empirical findings of the semi-structured interviews and observations in the case organization. The empirical section is designed to explain the phenomenon in the case organization by following the order of CKM processes that were found to be essential in the theory section. Thus, the first objective is to find out how the case organization acquires customer data, then how the organization generates customer knowledge out of that data and lastly how it is deployed in the organizational activities.

4.1 Customer data acquisition in the case organization

During the interviews and observations, it became apparent that the organization is currently acquiring customer data through verbal and non-verbal activities. EMEA Digital CRM Manager mentions that the customer service department is one of the few touch points within the organization that can communicate directly with the customers in face-to-face situations and exchange tacit knowledge with them through virtual meeting tools on a service automation system. The Digital CRM Brand Manager states that the customer service is utilizing a service automation system that is provided by an external partner. The participant observation demonstrated that the employees in the customer service department utilize this software to communicate with customers and transcribe customer data in case the customer contacts them again when they claim or praise the products or services, request support regarding the products or services they already own or are planning to purchase. Additionally, the participant observation showed that the customers provided suggestions and ideas not only regarding the products or services, but also the website appearance or functionality. Even though the software collects and stores some data about and from the customers, the employees are also required to fill out certain details on the customer profiles, such as contact details, what products they own, what was the reason for contacting the organization and so on.

Overall, the empirical evidence demonstrate that customer data acquisition though verbal communication is important in e-business but acquiring customer data also through non-verbal interactions is a good way to strengthen profiles of the customers. At the moment, the case organization is utilizing electronic interfaces such as their web shop and newsletter as a source of customer data. Additionally, the organization is working with mobile applications, but the responsibility is still with the parent company in the USA. According to the CRM Digital Brand

Manager, the mobile application is an opportunity to generate a lot of data about customers' behaviour and perceptions besides the web shop and newsletters. Furthermore, to support data acquisition on the web shop the case organization has implemented a salesforce automation system while the customer data acquisition on the newsletter is supported with marketing automation system. It is still unfamiliar for the case organization how customer data acquisition is supported on the mobile application. The Operational CRM systems the organization is utilizing are able to receive and disseminate customer data. To acquire personal customer data from the electronic interfaces into these systems, the case organization is encouraging customers to register on web shop or sign up for a newsletter. Without registrations or sign ups they can only acquire customer data in non-personal form that can only be used for informational purposes such as improving web site performance. Consequently, they are operating marketing campaigns that promote the registrations and sign ups. In this context, customers are required to provide at least their name and e-mail address. On the registration form the customers may also provide demographic and psychographic data for the organization, such as what products they own and what kind of apartment they have or what products and services they are interested in, which all together strengthens their profiles even more. In general, the e-mail address is the most important type of customer data because it is the key to follow customers' behaviour along their journey with the organization, remember the customers and their preferences and all other relevant data from the data sources. For instance, what type of content they have been clicking on websites or newsletters, how long they have stayed on the website or how engaged they have been opening the newsletter. Thus, every time the customers engage with the organization on these electronic interfaces, the Operational CRM systems can remember what the customers have done in the past and add customer data to their profiles that include demographic and psychographic knowledge about the customers.

4.2 Customer knowledge generation in the case organization

The interviewees highlight that once customer data has been acquired, it would be important to generate customer knowledge out of it by utilizing modern technologies. EMEA Digital CRM Manager assert that the organization is a strategy wise at the right direction of attempting to generate explicit customer knowledge out of the acquired customer data by combining all the data from different sources and using technology for deeper analysis. However, they have faced a lot of challenges in terms of data processing, and therefore the customer knowledge generation is still in a very basic level. One of the reasons for this is that in the past the customer data

was collected by individual countries, but after the General Data Protection Regulations (GDPR) was implemented, the organization was forced to change structures within the IT infrastructure and bring all customer data into regional systems in order to avoid data silos between the countries. Yet, different Operational CRM systems are not aggregated into a level that they would all share data in a way that all employees would have unique view of the customers. For instance, marketing automation system receives customer data from the salesforce automation system, but the sales force automation system is not receiving customer data from the marketing automation system. Meanwhile, the service automation system is not receiving customer data neither from the marketing automation system or the salesforce automation system. Especially, during the participant observations it became evident that different departments are having different views of the customers on their Operational CRM systems, and therefore they are unable to know some necessary things related the actions that the customers have conducted with the organization. Both interviewees state that it would be beneficial for everybody if these systems could share customer data, because some departments may have customer data that is not necessarily relevant for them but may be relevant for other departments. Therefore, the case organization is currently attempting to connect and harmonize the customer data that sits in these different operational systems. Especially, EMEA Digital CRM Manager highlights that this is extremely important because;

''*...the key to transform customer data into customer knowledge is to make the data accessible within the functional teams...*'' – EMEA Digital CRM Manager

Furthermore, he asserts that it is currently not easy for the employees in the organization to access some relevant customer data or consume it because the customer data is sitting in different systems. Fundamentally, this means that the employees must go in to different systems where the customer data is sitting, export it and analyze it in another place. Furthermore, EMEA Digital CRM Manager asserts that there is still a lot of steps to go before the IT infrastructure supports the customer knowledge generation;

''*...so we started from centralization process, but an important step to get knowledge out of information or data is to really to find and another place such as a single database where you combine all consumer information...at the moment we don't have this centralized big database like a typical data warehouse which could get all information together...*'' – EMEA Digital CRM Manager

Currently, it is a real problem for the organization that the customer data is not merged and combined in one single location because they are not able to conduct for instance data mining that allows the organization to explore and analyze the customer data in a deeper level. However, EMEA Digital CRM Manager asserts that the USA organization is doing a progress on this matter. Thus, data warehousing and data mining is something that the organization is looking forward to having in the future. Moreover, Digital CRM Brand Manager states that in the modern world, organizations need business intelligence besides the communication to know what the customers need and want;

''*...it makes sense to have a big data warehouse or something where you can collect all data and filter out the data from all the different platforms in order to get the most out of it so you can filter between data...*'' – Digital CRM Brand Manager

At the same time, the interviewee marks that the biggest challenge in customer knowledge generation is always to collect the customer data into a same location, because it requires a lot of integrations, and this requires a lot of capital from the organization. Besides modern technology EMEA Digital CRM Manager mentions that the organization needs a lot of other resources than capital in terms of customer knowledge generation. For instance, it would be desirable to have a central consumer insights department which could support the customer knowledge generation and deployment across the organization. This is something that the case organization does not have now. Besides, a central consumer insights department, he states it is important to build a suitable environment for customer knowledge generation where different departments collaborate with each other. The interviewee asserts that this is quite challenging to the organization and is one of the main reasons why the project is going forward in a slow phase.

4.3 Customer knowledge deployment in the case organization

According to EMEA Digital CRM Manager, the purpose of customer data acquisition and customer knowledge generation is to deploy customer knowledge into the functional departments such as customer service, marketing, sales and product management departments to support their decision-making in value-creating activities. EMEA Digital CRM Manager finds that when doing so, organizational profitability will be increased. Furthermore, he asserts that customer knowledge deployment is the process where the functional teams must create value for the customers by interpreting explicit knowledge in the knowledge repositories, meaning that

it is important that employees use their analytical skills, experiences and insights to make valuable conclusions out of the provided explicit customer knowledge. Digital CRM Brand Manager agrees with this statement and finds also that this is a real opportunity to differentiate from competitors. Eventually, when employees utilize their tacit customer knowledge in decision-making processes, it improves customers' consumption experiences and when the customers have a good consumption experience, they are more likely to purchase even more of products or services and gain interest in new categories or accessories, which all together increases the profitability of the organization. Therefore, the managers should encourage the employees to work with the provided explicit customer knowledge and combine it with their experience.

Overall, it is apparent that the case organization is attempting to deploy explicit customer knowledge into the functional departments to deliver knowledge for the customers and to customize products and services according to their needs and wants. When going into details, EMEA Digital CRM Manager states that customer service can utilize knowledge about and from customers to solve customers' problems and needs. This was also confirmed within the participant observation as it became apparent that the more customer knowledge customer service agents have, the better consultation and service they can give. For instance, sometimes the customers do not necessarily know themselves what the issue is with their product, and if the employees know what products the customers own and what the most common type of problems are for the customers related to these products, it is a lot easier for them to give the right and appropriate consultation and advice. At the same time, these types of customer knowledge are also interesting for the product management, sales and marketing departments. For instance, they are interested to know the biggest questions and problems of customers related to their products and services to improve customer self-service through electronic touch points;

''*...maybe we can already address a lot of these questions on the website in a FAQ page or simply sharing this information within interesting articles...to grow the knowledge for customers about our products...*''- EMEA Digital CRM Manager

Moreover, knowledge about and from customers are important for the sales and product management departments when they are attempting to develop and innovate customized products and services with the right prices for the current and potential customers. For instance, they are interested to understand how their typical customers look like, what is their average age, how long customers use their products, what type of products they use, how much they have purchased during specific time period and how much they spend on their products and services in

average. These types of customer knowledge can be utilized when they are attempting to customize the products and services according to customers' needs and wants. Also, marketing department attempts to utilize these types of customer knowledge to target the right customers with the right messages on the right time and place. Especially, customers' demographic, psychographic and behavioural patterns allow marketing department to treat and serve the customers in personalized and customized means. The participant observation demonstrated that the marketing department can for instance segment the customers based on these characteristics and send the right content in the newsletters to them. Digital CRM Brand Manager explains in the interview that they can for instance look what products the customers have been looking at or predict what products they are interested in and decide what products to put into the newsletter.

5. OPPORTUNITIES AND CHALLENGES OF CKM IN E-BUSINESS

The analysis of theoretical and empirical findings presents a variety of opportunities and challenges of CKM in e-business that organizations should consider when implementing this management method. First and foremost, Gibbert, et al. (2002) presented that CKM encourages an organization to create knowledge sharing platforms and processes with the customers, which contributes to a joint value-creation and deep understanding and insight of the customers. Thus, CKM allows value co-creation between the organization and its customers that is beneficial for both parties in e-business environment. Correspondingly, the interviewees also stated that CKM creates a customer-centered mindset within the organization that encourages to co-create value with customers.

Secondly, it was also mentioned on the behalf of Gibbert, et al. (2002) that CKM enables an organization to know what the customers know. Furthermore, Khodakarami & Chan (2014) and Miake, et al. (2018) made it clear that CKM enables an organization to define the most appropriate methods, interfaces and technologies to acquire customer data in e-business organization. Having a guideline for customer data acquisition with the appropriate technologies makes it easier for an organization to utilize it efficiently in a way that it becomes a source of competitive advantage – customer knowledge. The interviewees demonstrated also that customer data acquisition makes it possible to do a deeper analysis of the customers and thereby get even deeper insights and understanding of them. Moreover, Khodakarami & Chan (2014), Miake, et al. (2018) and Sedighi, et al. (2012) asserted that CKM as a management method in

e-business enables to build an appropriate IT infrastructure including integrations of different data sources, data warehousing and data mining that supports this agenda. At the same time, the interviewees highlighted that building such IT infrastructure that supports the flow of customer knowledge in the entire organization requires a lot of time and expensive modern technologies and other resources from the organization. However, alike Khodakarami & Chan (2014), Miake, et al. (2018) and Sedighi, et al. (2012) asserted, also the interviewees found that when succeeded, it brings enormous opportunities for an organization to differentiate themselves from the customers as it provides a real unique view of the customers which helps the employees to make the right decisions in value-creating activities with customers. Besides finding the right IT tools and building appropriate infrastructure for customer knowledge generation and dissemination, the empirical findings indicated also that succeeding different departments to collaborate together is a challenge in such a geographically scattered organization. Collaborating is eventually important because computers also need human touch to work out. Moreover, CKM requires a lot of management resources to ensure that employees are utilizing their analytical skills in day-to-day work that makes customer knowledge deployment possible in the value-creating activities. These challenges considering the IT infrastructure and organizational environment did not appear in the literature and can be considered as new findings and development of the theory.

Even though the challenges considering the technologies and organizational environment can be intimidating, it is important to remember that both empirical findings and theoretical findings (e.g. Khodakarami & Chan, 2014; Miake, et al., 201; Sedighi, et al., 2012) present an evidence that when an organization succeed with the appropriate customer knowledge acquisition, generation and deployment project, it enables employees to learn knowledge about and from customers which then supports the entire organization in decision-making in value-creating activities such as product development and innovation, marketing, sales and customer service. As it was also mentioned on the behalf of Gibbert, et al. (2002), also the interviews demonstrated that the more insights and understanding the organization has, the better their performance is against competitors. Also, both interviewees highlighted that customer knowledge is eventually a key to differentiate from competitors because it contributes to a superior customer consumption experience. To strengthen this perception, Jiebing, et al. (2013) also pointed this out in their research paper. When customers experience a positive consumption experience, they are more likely to buy more products and services as well as gain interest towards new categories that the organization offers. Thus, the superior opportunity of CKM is increased in sales of products and services.

6. FINDINGS AND CONCLUSIONS

The objective of this research was to find an answer to the following question: *''How can an organization manage customer knowledge in electronic business?''*. Based on this, the following sub-questions were formulized: (1) *'What are the key processes of customer knowledge management and their measures in the context of electronic business?* and (2) *What are the opportunities and challenges of customer knowledge management in the electronic business?* The findings and conclusions of each question is presented below through the reflection of theoretical and empirical findings.

Sub-question 1: What are the key processes of customer knowledge management and their measures in the context of electronic business?

Both literature and empirical research demonstrated that the first key process of CKM is **(1) customer data acquisition**, which aims towards the creation of new explicit customer knowledge including knowledge about and from customers. Fundamentally, this means that a customer-centered business strategy guides an organization to implement appropriate activities and technologies that allow an organization to acquire customer data in e-business. Researchers Khodakarami & Chan (2014) and Miake, et al. (2018) demonstrated that in e-business organizations can acquire customer data through socialization and externalization or only through externalization, meaning that there are two ways of acquiring customer data in e-business – either through a verbal communication or non-verbal interaction. These customer data acquisition processes can be supported with Operational CRM initiatives including functional departments, IT systems and electronic interfaces. The empirical findings confirmed the validity of this theory as the interviewees asserted that the case organization is acquiring customer data in both ways. The customer data acquisition through verbal communications is supported with a customer service department and service automation system including virtual communication tools that all together enable an organization to turn tacit knowledge about and from customers into an explicit customer knowledge. Meanwhile, customer data acquisition in non-verbal form is conducted through a web shop, newsletter and mobile application within the case organization. They also send surveys to the customers through these electronic interfaces. Within this non-verbal customer data acquisition, customers' behavior, preferences, psychographic events and demographic characteristics are automatically transcribed into knowledge repositories with the support of Operational CRM systems, such as salesforce automation systems and marketing automation systems (Kohdakarami & Yolande, 2014; Miake, et al., 2018). The case

organization itself is utilizing salesforce automation system to acquire the mentioned types of customer data on website as well as marketing automation system to acquire customer data from the newsletter. The mobile application is still a new implementation in the case organization, and therefore it did not appear what kind of system is supporting customer data acquisition on this interface. To actually acquire customer data in a personal form on the web shop and link these interactions with the other interfaces such as the newsletter, the case organization attempts to encourage customers to register on their website or sign up for a newsletter. Also, Rowley (2002) demonstrated that an organization may use tools such as registeration IDs on the website or otherwise it is impossible to acquire customer data in personal form on these interfaces. The intereviewees asserted also that if the customers do not register or sign up, they can only collect non-personal customer data for informational or statistical purposes that may improve the performance of the website. Furthermore, the empirical findings highlighted the importance of the e-mail address which the customers are required to provide when registering or signing up because it is the key tool to follow customers through the entire journey of relationship and create a unique view of the customers. Thus, an organization should encourage customers to provide their e-mail address in order for them to acquire other behavioural and psychographic customer data.

The literature suggested that customer data acquisition creates a base for customer knowledge generation that attempts to combine the new explicit customer knowledge with the existing customer knowledge in order to generate new organizational explicit customer knowledge (Sedighi, et al., 2012; Khodakarami & Chan, 2014; Miake, et al. 2018). Also the empirical findings contributed into the same conclusion and therefore, **(2) customer knowledge generation** is discovered to be the second key process of CKM. The theories by Sedighi, et al. (2012) Khodakarami & Chan (2014) and Miake, et al. (2018) suggested that organization should combine customer data with the support of Analytical CRM tools and techniques to generate customer knowledge. Furthermore, it was mentioned that an organization should promote a common data repository, such as data warehouse where all acquired customer data can be stored and analyzed in a deeper level through a method of Knowledge Discovery from Databases (KKD) that is also called as data mining technique. After a further analyzation, the results should be visualized into the Operational CRM systems with the help of Analytical CRM tools. However, the empirical findings demonstrated that this is not something that the case organization is doing now to generate customer knowledge. Yet, it does not mean necessarily that the theory is inaccurate, but more of an advanced suggestion of customer knowledge generation in e-business. This conclusion was made due to the reason that both interviewees highlighted the

importance of data warehousing and other Analytical CRM techniques such as data mining in e-business environment. The interviewees mentioned that currently the employees have to make a lot of effort to get a comprehensive understanding of the customers since the customer data is scattered in different systems. Furthermore, they demonstrated that the key of transforming customer data into customer knowledge is to make is accessible for all employees, and therefore it is an important to have a common database where all customer data can be stored, combined and analyzed in a deeper level as well as from where the combined customer data can be disseminated to the Operational CRM systems. Moreover, the empirical findings supplement the theoretical findings as it was discovered that an organization has to put a lot of effort into the integrations between different systems before the data warehousing is actually possible. Furthermore, this process needs support by the employees in the organization because the computers itself cannot generate knowledge by themselves. Therefore, one of the interviewees emphasized that it would be ideal if the organization had an entire department, such as consumer insights department, that would take control over this process and make sure of the dissemination of customer knowledge throughout the organization.

The last key process of CKM indicated to be **(3) customer knowledge deployment**. Khodakarami & Chan (2014) explained that after an organization has created new explicit organizational customer knowledge and visualized the results, the employees need to turn this into a tacit customer knowledge and deploy this into the value-creating activities with customers. Likewise, the empirical findings showed also that employees have to make valuable conclusions out of the provided explicit customer knowledge and mix this with their experiences and insights when attempting to create value for the customers. Thus, it can be argued that customer knowledge deployment refers to the internalization of customer knowledge, which is the end-result of organizational learning – Strategic CRM, likewise (Sedighi, et al., 2012) stated in their research also. Overall, both empirical and theoretical findings agreed that these value-creating activities may be for instance product or service innovation and development, which attempts to utilize the knowledge about and from customers to customize the services and products according to the customers' needs and wants. Other than that, an organization may deliver value to the customers through marketing and customer service activities where the employees can utilize knowledge about and from the customers to provide knowledge for the customers. The customer knowledge deployment ensures that the organization is offering services and products that the customers desire to own and use as well as to ensure that they are getting the right support during their consumption journey. Overall,

this key process ensures that customers have an excellent consumption experience which increases the profitability of the case organization.

Sub-question 2: What are the opportunities and challenges of CKM in e-business?

CKM as a management method in e-business brings both opportunities and challenges which an organization should bear in mind. As it was mentioned in the introduction on the behalf of Rowley (2002), e-business is the method of practicing computerized business through the Internet, where organizations can receive enormous amounts of customer data from multiple sources. Within these circumstances, CKM becomes essential as it is the key tool to define what methods, interfaces and technologies are used to acquire customer data. More than that, CKM provides the right tools and activities to generate and deploy customer knowledge, meaning that it guides the organization to make the best use out of the acquired customer data. Likewise, as the interviewees asserted, also theoretical findings indicated that CKM is the key management tool to manage customer knowledge in a way, so it becomes a competitive advantage, meaning that it allows interaction between explicit customer knowledge and tacit customer knowledge. Overall, it became evident in both empirical and theoretical sections that CKM promotes organizational learning that increases organizational performance and growth against the competitors as it supports relationship building and engagement (Miake, et al., 2018; Khodakarami & Chan, 2014; Sedighi, et al., 2012; Gibbert, et al., 2002), product and service innovation and development and facilitates emerging market opportunities (Jiebing, et al., 2013; Fidel, et al., 2015; Gibbert, et al., 2002). Eventually, altogether they contribute to a superior consumption experience, and when customers have a positive experience with the organization, it increases sales of services and products.

Although CKM can provide the right tools and activities to manage customer knowledge in e-business environment, it is also important to point out that building an appropriate IT infrastructure that supports management of customer knowledge throughout the organization and is accepted by all of the employees, is quite challenging. Moreover, the acceptance of these IT tools requires a lot of effort from the managers because without the employees the entire agenda is impossible. Moreover, making all employees use their analytical skills in day-to-day work life and make them to collaborate together to share customer knowledge can be a challenge in the e-business environment where employees can be located in different geographical locations. Furthermore, it cannot be mentioned too much that building and maintaining such a complex

IT infrastructure including multiple Operational CRM and Analytical CRM technologies is an expensive and time-consuming project that requires a lot of management support and analytical expertise from the employees.

The main-question: How can an organization manage customer knowledge in electronic business?

Based on theoretical and empirical findings, it can be argued that an organization can manage customer knowledge in e-business by implementing customer-centered technologies and functional departments that embrace the cycle of customer data acquisition, customer knowledge generation and customer knowledge deployment. A cycle of this processes is a requirement due to the dynamic nature of customer knowledge. Embracing the mentioned key processes with the appropriate technologies and functional departments allows an organization to create explicit customer knowledge which can be interpreted into a tacit customer knowledge and utilized for decision-making in value-creating activities with customers.

In general, business strategy must guide an organization to acquire customer data through verbal communications with the support of virtual communication tools and service automation systems as well as through non-verbal interactions on electronic interfaces with the support of marketing automation and salesforce automation systems. These operational CRM systems works as data collectors as they are able to receive and disseminate customer data. An organization must also implement different functional departments where employees make sure that relevant customer data is acquired for the organization. To generate organizational explicit customer knowledge out of the acquired customer data, organization must utilize Analytical CRM tools and techniques to integrate customer data sources and combine customer data into a single database such as data warehouse where the customer data can be analyzed in a deeper level with data mining techniques. To support this process, an organization must implement a department such as consumer insights department that is responsible of the customer knowledge generation. After a further analyzation, the results may be visualized back to the Operational CRM systems in a way that all functional departments have unique views of the customers. The new organizational explicit customer knowledge can be then interpreted by the employees and utilized in activities that attempt to deliver value for the customers. Thus, customer knowledge deployment must attempt to create tacit customer knowledge by mixing explicit customer knowledge with experiences, values and insights. As customer knowledge is dynamic and

changes rapidly, the business strategy should guide the organization to repeat the processes of customer data acquisition, customer knowledge generation and deployment in a continuous movement to ensure an up-to-date customer knowledge.

6.1 Future research

A few gaps were identified during the theoretical and empirical research which could potentially be researched in a further level. First and foremost, it could be interesting to research the same topic in a bigger scale in which the empirical data is collected from multiple case organizations that operate business in different industries. This would provide a lot broader perspective to the problem, because this research project considered only one organization. Secondly, it would be preferable to know more about the appropriate technology related to CKM, because this appeared to be the most challenging part of the phenomenon. For instance, it would be interesting to know how an organization can aggregate different customer data sources together or simply research how an organization can build an appropriate data warehousing infrastructure that supports the generation and dissemination of customer knowledge. Another interesting aspect that needs further research considers the collaboration of different departments, because the empirical findings indicated that it is an important aspect besides the technology to ensure the flow of customer knowledge within an organization.

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APPENDIXIES

Appendix 1: Interview questions

- Could you please provide a brief introduction of your background?

- How does your organization acquire customer data?

- What types of customer data does your organization acquire?

- What measures does your organization take to transform customer data into a customer knowledge?

- How does your organization disseminate this customer knowledge?

- What is the strategy of deploying customer knowledge deployed within the organization? Examples?

- Do you find that customer knowledge is an important asset for your organization? If yes, why?

- Do you have any other ideas to share that would improve the management of customer knowledge in your organization?

- Do you have anything else in your mind that is important to know related things we have discussed during this interview?

Appendix 2: Participant observation documentation form

Date of participant observation:

Department of observation:

Notes regarding the findings during the observation: