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The role of customer relationship management in organizational innovation capability

Miguel Maria Colaço
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Orientation:
Professora Winnie Ng Picoto (ISEG – Lisbon University)
Professora Cristiane Drebes Pedron (PPGA – UNINOVE)

Abstract:

Organizations are facing new obstacles every day, due to constant changes in the market, especially when dealing with customers' needs and new trends. Nowadays, customers are very sensitive to the market and are constantly aware of new trends and new products/services. This market development creates pressure within organization structure.

Customer relationship management (CRM) is much discussed in the academic environment (Ngai et al., 2009), regarding information systems and marketing management. CRM adoption is growing, with clear objectives of improving organizational performance (Sin et al., 2005), increase customer satisfaction and retention.

CRM has several capabilities and correctly implemented in organizational structures can provide benefits in terms of internal and external processes. CRM can also affect organizational innovation capability (Lin et al. 2010). In this master thesis, the link between customer relationship management and organizational innovation capability was taken into consideration.

The main research question of this project is: How useful are CRM systems in providing support for innovation capability? The argument supporting this question is that CRM can drive innovation through dynamic capabilities. By sensing, seizing and reconfiguring opportunities and threats (dynamic capability framework) of the market, it allows organizations to manage innovation.

In this master thesis, exploratory interviews were conducted with CRM experts (academics and professionals) in order to understand how CRM can improve innovation capability. The theoretical background to support this thesis was also a research objective, due to the gap in academic literature concerning this subject.

The main contribution of this research project was the proposition of a conceptual model linking CRM systems usage with innovation capability. It is also suggested for future work, a set of hypothesis to be tested, in order to prove the suitability of the proposed model. The contributions of this master´s thesis are relevant both to academics, researchers and also to companies

Keywords: Customer Relationship Management; Dynamic Capabilities; Innovation Capabilities

Resumo

As empresas hoje em dia estão a enfrentar novos obstáculos, devido às mudanças contínuas no mercado, especialmente quando se tratam de necessidades dos clientes e novas tendências. Atualmente os clientes são muito sensíveis ao mercado e estão constantemente atentos às novas tendências e novos produtos/serviços.

Customer relationship management (CRM) é um tópico muito discutido no ambiente académico (Ngai et al., 2009), em relação a sistemas de informação e em gestão de marketing. A adoção de CRM está a crescer, com objetivos claros de melhorar a performance das empresas (Sin et al., 2005), aumentar a satisfação dos clientes e a sua fidelização.

CRM tem inúmeras capacidades e com a implementação adequada na estrutura de uma empresa pode trazer alguns benefícios em termos de processos internos e externos em relação à relação com os clientes. CRM pode também afetar a capacidade de inovação de uma empresa (Lin et al. 2010). Neste trabalho final de mestrado, a relação entre custeomer relationship management e a capacidade de inovação das empresas foi analisada.

A principal questão de investigação desta dissertação é: "Como é que os sistemas de CRM são úteis no suporte à capacidade de inovação de uma organização?". A base de argumentação desta questão é o facto dos sistemas de CRM impulsionarem a inovação através da teoria das capacidades dinâmicas. Através da deteção, apreensão e reconfigurando de oportunidades e ameaças (Framework das capacidades dinâmicas) do mercado, as empresas conseguem gerir sua inovação.

Nesta dissertação foram efetuadas entrevistas exploratórias com especialistas em CRM (académicos e profissionais) de forma a entender como é que o CRM pode melhorar a capacidade de inovação nas empresas. Outro objetivo desta dissertação foi o desenvolvimento da base teórica deste tema devido à lacuna que existe na literatura atualmente.

A principal contribuição desta dissertação foi a proposta de um modelo conceptual da relação do CRM com a capacidade de inovação. Foi também apresentado um conjunto de hipóteses para serem testadas em investigação futura para provar a adequação do modelo proposto. As contribuições desta dissertação são relevantes para académicos e investigadores.

Keywords: Customer Relationship Management; Dynamic Capabilities; Innovation Capabilities

Acronyms:

CRM - Customer Relationship management

RBV – Resource based view

R&D – Research and Development

IT/IS – Information Technology/ Information Systems

NPD – New product development

MIS – Management information systems

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1. Introduction

1.1. Problem Statement

The concept of customer relationship management (CRM) is often discussed in the academic environment and there is no single definition (Ngai et al., 2009). CRM should be seen as a company's overall strategy, designed to optimize profitability and customer satisfaction, through the internal organization of the company around the customer segments, and to ensure value creation both for the company and for its customers (King et al., 2005).

For the past decades, organizations have adopted CRM systems with the objective of operational performance enhancement and profitability and market share improvement (Reinartz et al 2003). In order to develop operational performance, organizations are increasingly investing in information technology and information systems (Bharadwaj, 2000).

Even though organizations invest in costly CRM systems, they have not been able to fully achieve the potential of acquiring customer knowledge (Khodakarami et al., 2014). To do so, organizations must understand the changes on strategy and business processes to be implemented (Chen et al., 2003). Throughout this learning and changing process, organizations should be able to develop an important capability - innovation capability (Teece, 2007).

1.2. Objectives and Research Questions

Based on the above problem statement, this research project has the objective of analyzing the link between CRM and innovation capability though the dynamic capability theoretical lens (Teece, 2007). We conducted a qualitative study, through exploratory interviews, to investigate the possible link between CRM and innovation capability. Another goal of this research project is to provide a comprehensive literature review about customer relationship management and innovation capability. This research aims at answering the following research question: "How useful are CRM systems in providing support for innovation capability development?"[1]

[1] This academic work is part of an international research project conducted in Portugal and Brazil in a partnership between ISEG –UL and UNINOVE.

1.3. Research Structure

This research project is organized in 4 main parts: i) literature review, ii) methodological approach, iii) data analysis of interviews with experts and, finally, vi) final remarks.

The first phase of this research project was to execute a systematic literature review to guarantee that the results of the project were aligned with the existing knowledge about the subject matters being analyzed. The literature review was focused on three main concepts as well as the relationships between them: CRM, dynamic capabilities and innovation capability.

The second phase was the methodological approach. Regarding the research question of the present paper and the gap on the literature about the link between CRM and innovation capability, it was necessary to execute deeper research to complement the existing literature. The elaboration of the interview guide was prepared based on a theoretical background of the literature review.

The third phase of this research was conducted through face-to-face interviews (non-standardized and semi-structured) with executives, consultants, users knowledgeable of CRM systems (from CRM, marketing and information system areas) and CRM academics.

The fourth and final phase of this project was to analyze the data collected in order to reveal and summarize the implications of the findings, taking into consideration the interviews, while considering the limitations of the research and methodology. Recommendations for future work were developed.

2. Theoretical Background

We present in this chapter the theoretical background used to support the research question. The theoretical background was focused on three main concepts: CRM, dynamic capabilities and innovation capability. In the end of this chapter we present the relationship between two of the main concepts: CRM and innovation capability, according to the empirical study of Lin et al. (2010).

2.1. Resource Based View

Nowadays companies look to stand out in what it is a very competitive business world. In order to create competitive advantages in the market, companies must have a dynamic strategy (Porter, 1996). Strategy was defined by Porter (1996) as the formulation and implementation of a managing process designed for decision-making, in a period of time concerning the definition of the business, developing objectives and critical success factors. Additionally, Porter identified 5 key forces: competition in the industry; potential of new entrants; power of suppliers; power of customers; and threat of substitute products.

The definition and the dynamic update of the business strategy is fundamental to create and explore competitive advantages and consequently create sustainable business values (Nickerson et al., 2007).

The approach to make a successful strategy is not easy and companies need to know all the variables that influence their businesses (Bradley et al, 2011). The internal and external analysis of the market and products they offer is crucial to maintain and even upgrade their market share. When business analysis is made, all events and possibilities should be brought up. When looking for a competitive advantage, every scenario should be taken into perspective (Bradley et al, 2011).

There is a visible link between competitive advantages and competition. A competitive advantage exists when you have some leverage to your direct competitor. This means that you can distinguish yourself from your competition in a way that could create greater value to the company (Montgomery & Porter, 1991). A competitive advantage is not just about having a better product - there are many types and ways of creating competitive advantages. Examples include having an optimized distribution network, or efficient customer support, or simply to having a lower cost structure in production (Montgomery & Porter, 1991).

Even more important than having a competitive advantage is being able to sustain it over time. For that, a company must have the ability to manage and boost their resources and capabilities to ensure the advantage for the maximum period of time. (Grant, 1991)

There are procedures and frameworks designed to help companies understand competitive advantage, for example resource based view theory and dynamic capabilities framework. Resources can be defined as something tangible and intangible that could be a strength or weakness to a given company (Wernerfelt, 1984). Resource based view is a framework designed to understand how competitive advantages are achieved and how the advantage can be used and sustained over time (Eisenhardt et al., 2000).

This theoretical framework defines that resources are the base of the company, and are fundamental for the correct functioning of the business, so they should be distributed along all business departments. If a company has the resources distributed across the whole structure, then the resources can be evaluated as sources of a competitive advantage. (Barney, 1991).

Resources must be *valuable* (meaning that they must be a source of greater value, in terms of relative costs and benefits, when compared to similar resources in competing firms), *rare* (rareness implies that the resource must be rare and scarce relative to demand for its use or what it produces), *inimitable* (it is difficult to reproduce) and *nonsubstitutable* (other different types of resources cannot be functional substitutes), to be considered basis for sustainable competitive advantage (Ambrosini et al., 2009). Sustainable competitive advantages are achieved when the advantages are part of the value-creation strategy and are hard to be copied by a competitor (Eisenhardt et al., 2000).

Even though resource based view is a good base for creating competitive advantages (Peteraf, 1993; Hart, 1995), the literature review suggests that some authors defend the necessity for a review of this theory due to the static basis of the current theory (Wang et al., 2007; Kraaijenbrink, 2010; Bowman & Ambrosini, 2003). As it stands today, the theory fails to describe how resources can be created in the future, how competitive advantages can be addressed in dynamic markets with constant environment changes, and how multiple-business companies can apply and use the concept in all its business units. (Bowman & Ambrosini, 2003). Other point of criticism is the concept and relevance of the organizational knowledge that is established as an objective, a variable and have functional value.

2.2. Dynamic capabilities

As mentioned before, the success of a product or even a company is defined by the capability to respond quickly to a dynamic market and its sudden changes (Boynton, 1993). A "Company" is defined by Lockett (2005, p. 85) as "administrative organizations that are collections of heterogeneous productive resources that have been historically determined". The resource-based view theory supports this definition.

The challenges of resource based view are still the focus of some authors (Wade et al., 2004; Ambrosini et al., 2009). It is a unanimous opinion that the theory does not explain "how future valuable resources could be created or how the current stock of valuable, rare, inimitable and nonsubstitutable can be refreshed in changing environments" (Ambrosini et al, 2009, p. 29).

During the early 90´s, Teece et al (1997) presented a new concept to complement and take the resource based view to a more dynamic level. The concept of dynamic capabilities was introduced in order to explain how a company can create and have competitive advantages for a vast period of time and in a changing environment (Teece et al., 1997).

The definition of dynamic capabilities was established by Teece et al., (1997, p. 516) by saying that dynamic capabilities are "the company´s ability to integrate, build and reconfigure internal and external competence to address rapidly changing environments".

After the introduction of dynamic capability definition, other definitions were proposed but almost every single one appeared as merely a complement to the existing one (Ambrosini et al., 2009). Some of the definitions of dynamic capabilities were logical: "The company´s processes that use resources – specifically the processes to integrate, reconfigure, gain and release resource – to match or even create market change. Dynamic capabilities thus are the organizational and strategic routines by which companies achieve new recourses configurations as markets emerge, collide, split, evolve and die" (Eisenhardt et al, 2000, p. 1107) or "A company´s behavioral orientation constantly to integrate, reconfigure, renew and recreate its resources and capabilities and, most importantly, upgrade and reconstruct its core capabilities in response to changing environment to attain and sustain competitive advantage" (Wang et al, 2007 p. 40-41).

Other definitions just added small changes to the original definition: "Dynamic capabilities is a learned and stable pattern of collective activity through which the

organization systematically generates and modifies its operating routines in pursuit of improved effectiveness (Zollo et al, 2002, p. 344) or "dynamic capabilities are those that operate to extend, modify, or create ordinary capacities" (Winter 2003, p. 991).

In order to analyze the performance of companies in this particular subject, David Teece in 2007 (p. 1319-1350) presented a framework entitled "Foundations of Dynamic Capabilities and Business Performance". The presentation of this framework was, in some points, a break from the Five Forces of Porter. The criticism brought up by several authors to the Porter´s framework determined its limited utility. Due to the static nature of the framework and the lack of importance given to the factors that change the market and create innovation, to factors regarding the decisions making inside the company, mechanisms of protecting intellectual property and also the lack of relevance of the capability of expecting and react to opportunities and threats (Teece, 2007).

The framework "Foundations of Dynamic Capabilities and Business performance" has been developed to help companies understand how and when they have competitive advantage. (Teece, 2007).

This framework has pointed out the three natures of the capabilities: first, the capacity to sense and shape opportunities and threats; second, the capacity to seize opportunities; and finally the third, the capacity to maintain competitiveness. In a simple way, the three points above can be achieved by "enhancing, combining, protecting and if necessary, reconfiguring the business assets" (Teece, 2007, p. 1319-1320).

According with Teece (2007), the three main components of the framework are composed by micro foundation. The micro foundation are "capabilities necessary to sustain superior enterprise performance in an open economy with rapid innovation and globally dispersed sources of invention, innovation, and manufacturing capability" (Teece, 2007, p. 1319-1320) – figure 1.

The first nature of capabilities is sensing opportunities and threats. These capabilities regard all the processes of identifying opportunities and threats in the market in order for an organization to have a quick and dynamic response to situations that effect the market and its customers. In terms of sensing opportunities and threats to the markets, information systems help identifying the information and knowledge, particularly analytical systems concerning customers (Teece, 2007).

The second main component of the dynamic capabilities framework is seizing opportunities. Seizing opportunities is important and addressing those opportunities can explain the difference between the success and failure of an organization. The micro

foundation proposed by Teece (2007) suggests the optimal achievement of opportunities by (1) delineating the customer solution and the business model, (2) selecting decision-making protocols, (3) selecting enterprise boundaries to manage complements and control platforms, and (4) building loyalty and commitment (Teece, 2007).

Finally, managing threats and reconfiguration is an important strategic component and concerns the aptitude of reconfigure an organizational structure and resources with the development of the market dynamic. In order to correctly manage threats and reconfiguration, it is necessary the alignment of micro foundation: (1) decentralization and near decomposability; (2) Governance (3) Cospecialization and (4) Knowledge Management. Reconfigure

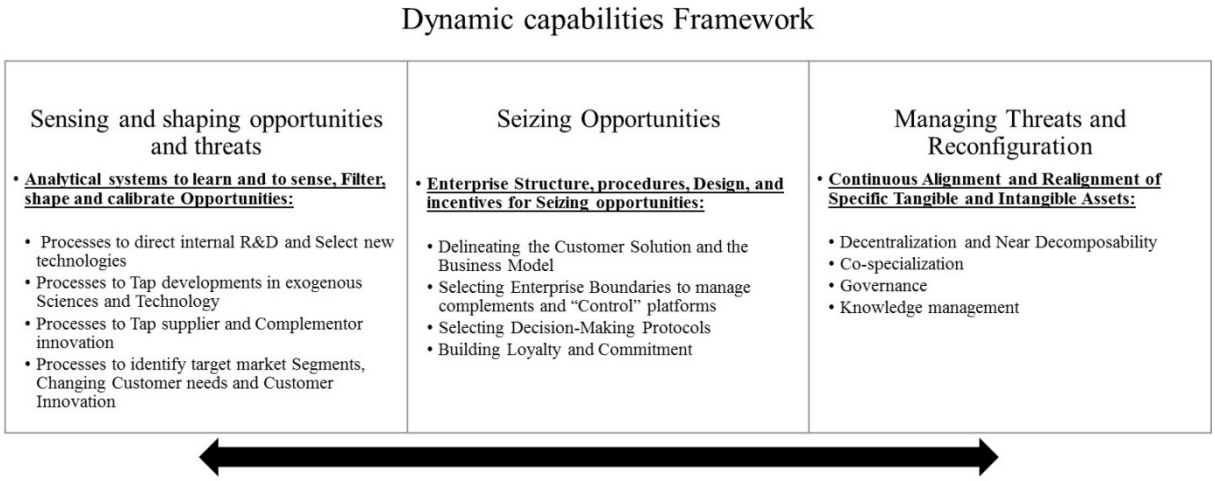


Figure 1 - Dynamic Capabilities Framework (adapted from Teece, 2007)

2.3. Innovation Capabilities

Over the past decades, global economic trends have transformed the customer base for most of the companies (Gottfredson et al., 2005). This transformation made companies focus on their customers, especially on their behavior and needs. The change of focus by the organizations increased the necessity to collect and understand customer data. With this information organizations are capable of improving their innovation capability (Chen et al., 2003).

Innovation can be defined as the process of using a new idea or concept into a product or service that will create or add value and that will make the customer pay for it (Teece, 2010).

A concept like innovation is not easy to define and is even harder to apply the concept to the business environment. Urabe in 1988 (p. 3) defines: "Innovation consists

of the generation of a new idea and its implementation into a new product, process or service, leading to the dynamic growth of the national economy and the increase of employment as well as to a creation of pure profit for the innovative business enterprise. Innovation is never a one-time phenomenon, but a long and cumulative process of a great number of organizational decision-making process, ranging from the phase of generation of a new idea to its implementation phase."

In order to achieve innovation and consequently competitive advantage the organization needs information about the market and its customers (Bryson, 2011). According to Bryson (2011), the sources of information can be internal or external. In terms of internal sources, employees can be recognized as a very important asset regarding their contribution to new product development. Employees have inputs and inside information of all business issues (including products, resources and processes) that can be converted into new ideas, new products and also new business processes. The other source of information is external - organizations, customers or trends can be good indicators of where the opportunities are and how the organization must proceed to guarantee them (Bryson, 2011).

Innovation has been studied by the international academy about the impact of innovation capability on organizations. Innovation capability is the ability of an organization to present and develop new ideas that provide in a short or long period of time some advantage and profit (Nisula & Kianto, 2013). Innovation capability can be defined as the ability to develop products that meet the needs of the market by using technology. Innovation capability is the skill of using new technology to create new opportunities (Alder & Shenhar, 1990).

Ernst & Young Corporation (2011) [2] defines four main categories to achieve innovation capability at a perfect level: (1) **Customer insight** - to develop innovation companies must know their customers and understand their needs and how products and services can really resolve those problems; (2) **People and Culture** - to accomplish innovation capacities the mindset must be changed, this means that the company and their employees must be prepared to adapt the productions regarding the customer insight; (3) **Research and Development (R&D)**– it is critical when we are talking about innovation capabilities. After having the customer insight and the correct mindset, a company´s R&D must ensure that they produce and have a correct balance between the available resources

[2] http://www.ey.com/GL/en/Issues/Business-environment/Innovating-for-the-next-three-billion---Our-innovation-capabilities-model

and the production capability to achieve in time a customer needs; and finally, (4) **Operations and Business Model -** to achieve innovation capability most of the companies try to change their pricing structure and business model to develop products and services that better suit their clients.

Organizational innovation is the implementation of a new organizational methodology and internal process (OECD, 2005). This is not just a change in the organizational way of dealing with stakeholders, but also what defines the organizational innovation is the result of strategic management decisions (OECD, 2005).

Implementing the best practice in the market and new methodology in terms of procedures and routines is considered organizational innovation. Organizational innovation includes intra-organizational and inter-organizational dimensions. Thus, when a new methodology of work is established, the company must focus not only on internal dimensions, but also on external dimensions (Armbruster et al., 2008).

2.4. Customer Relationship Management

2.4.1. Definition

The concept of customer relationship management (CRM) is much discussed in the academic environment with numerous definitions and determinations, so there is no universal definition (Ngai et al., 2009). Swift (2001. p 12) defines CRM as “enterprise approach to understanding and influencing customer behavior through meaningful communications in order to improve customer acquisition, customer retention, customer loyalty, and customer profitability”.

Despite several definitions of CRM, we can state that CRM can be seen as a company's overall strategy, designed to optimize profitability, profit and customer satisfaction through the internal organization of the company around the customer segments to ensure value creation for both the company and the customer (King et al., 2005).

Modern companies are facing intensifications of the competition in global markets and rapidly change of the needs and wishes of demanding customers (Wei-wei et al., 2010). Customer data and information must be a critical focus for companies. The knowledge companies have about customers is a very important and valued resource (Khodakarami et al., 2014). By combining good organizational structure, processes and

personal skills, companies can achieve success in customer knowledge creation (Khodakarami et al., 2014).

2.4.2. Components of Customer Relationship Management

CRM is the combination of tree main components (Mendonza et al., 2007):

- Processes – the way customers relate with the company, not only directly but also indirectly. This component depends on the area of business of the company.
- Human factor – the base for every business. CRM is about managing and improving the relationship between the company and the customer. Human factor is the component of CRM where the company defines how it is going to handle the connection with the customers.
- Technology – the component that facilitates the implementation of a customer oriented strategy. The key to success is to know which technology is adequate to the business and to the customers. Many projects of implementation of CRM application fail because of incorrect and inappropriate expectations regarding the business model of the organization (Steeel et al., 2013).

In order to create, maintain, and re-establish a long term loyalty relationship with customers, companies are implementing relationship marketing principles through changes and adaptations to dynamic environments. The implementation of relationship marketing principles combined with customer relationship management applications can also be a way to successfully establish the relationship and loyalty with customers. (Chen. et al., 2003).

Chen & Popovich (2003, p. 673) determined that CRM applications are not just technology applications for support of operations, but also, when successfully implemented, the "cross functional, customer-driven, technology-integrated business process management that maximizes relationships and encompasses the entire company".

Khoradakarami & Chan (2014, p. 28) defined CRM applications system as a "group of information systems that enable organizations to contact customers and collect, store and analyze customer data to provide a comprehensive view of their customer".

Main categories of CRM applications system:

- **Operational CRM** – This type of system is generally used to increase the productivity and efficiency of the CRM process through automation (Khodakarami et al., 2014). Operational CRM is the category of system that deals with the

organizational processes directly linked to the customers, for example front-office. The contact and relationship between the customer and the organization is maintained and improved with this type of CRM application system (Berson et al., 2000).

- **Analytical CRM** – The capability to collect information of the customers is one of the most important foundations of a CRM strategy. (Khodakarami et al., 2014). Analytical CRM system combining several processes of data analysis, like data mining, data warehouse and web mining provide knowledge about individual customers. This data analysis provides the company with categories and structure, and analyzes large amounts of data to discover customer knowledge (Khodakarami et al., 2014).
- **Collaborative CRM** – The experience of customer and customer behavior are sometimes hard to evaluate. For that reason, this category of CRM application system is relevant. Collaborative CRM systems manage and consolidate the communications channels both internal and external in all customer collaboration points. This category improves the capability of the company to communicate and to understand the real impact of websites, email communications, customer portals and video conferencing in their customers and employees (Khodakarami et al., 2014).

2.4.3. Customer Relationship Management and Innovation Capability

Customer relationship management and innovation capability are two distinct concepts. Nevertheless, Lin et al (2010, p. 115) published a study connecting Customer relationship management and innovation capability. The application of CRM systems to create a developing customer relationship and enforce long-term relationships are, according to Lin et al (2010, p. 115), key strategic elements for developing organizational innovation capabilities.

In their research Lin et al (2010, p. 113) present four main dimensions to analyze CRM activities: (1) Information sharing; (2) Customer involvement; (3) Long-term Relationship; and (4) Technology-based CRM. These dimensions are based on the interaction between the organization and their customers.

Firstly, **information sharing** regards how crucial information and knowledge is traded between the organization and the customers as a result of market demand, customer preferences, and new products release (Lin et al., 2010, p. 113). Secondly, **customer involvement** concerns the contributions of customers on the conception of

new products and services. Customers frequently provide better knowledge of present and future demands of the market trends (Lin et al., 2010, p. 113). The dimension, **long-term partnership**, worries about a critical factor in a market, the trust and commitment between an organization and the customers. A partnership is a business connection among two or more partners that have equal benefits from this relationships (Lin et al., 2010, p. 113). Finally, **Technology-based CRM** concerns the way how organizations uses technology to improve CRM activities and has technology support to customers, like CRM software systems. (Lin et al., 2010, p. 113).

The study of Lin et al. (2010, p. 114) also provides dimensions to scrutinize innovation capabilities in organizational environment: Product innovation; Process innovation; Marketing innovation; Service innovation; Administrative innovation.

Primarily **product innovation** is a dimension that considers all factors that affect the development and upgrade of new products in terms of function, quality and consistency, taking the market trends and customers feedback. The activities of developing and upgrading the methodology of the organization´s procedures and introduction of new concept to it, are related to **process innovation**. The third dimension referred by Lin et al. (2010, p. 114), is **marketing innovation,** mentions activities regarding the marketing and communication of the organization, like market research, pricing strategy, customers segmentation and marketing information systems. Another dimension is **service innovation**, like product innovation regards all factors that affect the creation, development and upgrade of new services to improve customer satisfaction. Finally, **administrative innovation** concerns the modifications on the organizational structure or administrative (Lin et al., 2010, p. 114).

The literature review on the relation of CRM and innovation captivities is very restricted and recent, although the orientation of the two concepts is not yet fully understood, CRM has a positive effect on innovation capabilities of an organization (Lin et al., 2010) (Zablah et al., 2004).

3. Research Method

In this chapter the necessary steps to execute this research project are presented. The chapter is divided in three main parts: first, a complete description of the implemented methodology, from the theoretical background up to the final conclusions of the present work. This is followed by the content analysis of the interviews. This step was of the upmost importance to this research. Finally, we present at the end of this chapter, the final output of the research project, - the proposed model to be proven in future research work.

3.1. Methodology

In order to correctly achieve our research goals, we first analyzed the existing literature to better understand the concepts and links between CRM systems, innovation capability and dynamic capabilities. – The project was set to follow a positivist epistemology and follow the guidelines of ISEG-UL in terms of ethics and respect for the authors´ rights.

This master's dissertation, is part of the research project "Exploring the Role of Customer relationship management in organizational innovation Capability", which has a methodology and work process already defined. In this dissertation our focus was to collect and analyze data by interviewing a group of experts in the field of work.

The first step of the master dissertation, was a literature review. Following Khodakarami et al. (2014) approach, we did a systematic review of literature using the list of top journals in the field of management information systems, marketing and innovation. This research project considered the following journals: Management Information Systems Quarterly, Information System Research, Journal of management Information systems, Communications of Association for Computing Machinery, European Journal of Information System, Decision Support System and Information & Management, Academy of Management Journal, Academy of Management Review, Strategic Management Journal, Journal of management Studies and Technovation. The period of time was set to 2000-2014 and keywords were: customer relationship management, innovation capability and dynamic capability.

This process was performed through three main digital libraries (B-on, Science Direct and google Scholar), to ensure we had sufficient relevant articles about the subject in case.

The results of the first research by non-related keywords were a portfolio of 825 articles. It is important to understand the basics of each keyword to enable us to have a first recognition of the theory behind dynamic capability (190 articles), resource based view (332 articles), innovation capability (226 articles) and customer relationship management (303 articles).

In order to explore more deeply the concepts referred and explore the connections between these we cross matched the concepts with each other. According with Khodakarami & Chan (2014) the potential of CRM systems is not being entirely used, for that reason in our research in digital libraries we cross matched: “customer relationship management and innovation capability”; and “customer relationship management and dynamic capabilities” (see table 1 and table 2).

Jiao et al. (2011, p.140) determinate that “innovation strategy is a key-driving factor for dynamic capabilities”, and in our research we combine these concepts.

Author	Title	Research question	Researsch Method	Research findings	Some details
Keramati, A, et Al -2010	A process-oriented perspective on customer relationship management and organizational performance: An empirical investigation	Specify what resources are importante for implementing CRM processses; Demonstrate diferrent perspective on CRM; Display how and which mechanisms CRM creates value for the firm;	Case study about iranian internet service providers usisng a field survey	> CRM process are more affected by infrastructural CRM resources rather than tecnological CRM resources; > Organization with CRM process capabilities more mature have better organizational performance;	The integrity and harmony between different components of CRM have a crucial role in CRM´s ability to cretae value to a firm. The framework presented, highlights the importante of CRM resources (technological and infrastrutural) on obtaining competitive advantage through the creattion of CRM process capabilities;
Rapp, A et Al - 2010	Performance implications of customer-linking capabilities: Examining the complementary role of customer orientation and CRM technology	How Technology and complementary resources are bundled to form capabilities that foster durable customer relationships?	Survey (sample 215 responses) to top management teams in firms representing a broad cross section of US based industries	> CRM technology capability and customer orientation have a positive association with the development of durable customer relationships; > Customer-linking Capability has positive relationship with Customer relationship performance and that the rapidly of changes in the external environment moderates this relationship;	This study has a cross-sectional nature wich make it hard to understand the order of effects and make it infercausality. This study also suggested that is necessary to examine intermidiate variables, like marketing capabilities, whem you are trying to understand how information technology resources relate to firm performance.
Beldi, A, et al - 2010	Managing customer relationship management projects: The case of a large French telecommunications company	How a "Team project manages CRM implementation projects sucessfully, across the diferrent phases of implementation process?	Case study ot the "client Branch" of a large telecommunications company in france	> The success of a CRM implementation project in pending in three distinct phases: Planning , Piloting finally Rolling out	The implementation of a CRM project affects two dimensions in the company: Technological and organizational (Implied an evolution in business processes and structure. Presentation of Features of observed CRM implementation project and recommendation for improvement.)
Johnson, D et al - 2012	Customer relationship management processes: How faithful are business-to-business firms to customer profitability?	Exanimate the motivational effect of market growth rate and customization requirements, and the technology and information integration capabilities of the firm as determinants of firm adherences to threating customers according to their profitability		> Firms are better at maintaining customers according to their profit potential than acquiring customers according to their profit potential; > Going after customer profitability has limited impact unless is being complemented by a comprehensive range of initiatives aimed at making the firm more customer-focused;	The Customer equity faithfulness conceptual framework is the baseline of this paper. To accomplish better firm performance, you have guarantee customer focused structure combined with Customer acquisition and customer maintenance faithfulness by using market condition and Firms resources
Garrido-Moreno, A et al - 2011	Analyzing the impact of knowledge management on CRM success: The mediating effects of organizational factors	Is knowledge management the main factor that determines the sucessful implementation of CRM? Are there other factores that are also relevant? What is their role in CRM success?	Sruvey (sample of 153) to 3-5 star hotels located in Spain	> The proposed factors have a positive influence in CRM success; > Introducing KM initiatives or CRM technologies does not generate advantages for the firm or translate into a positive impact on the results. To have success in this initiatives the firm must plan a change at the organizational structure;	The integrated framework proposed demonstrates the factors affecting CRM sucess . Is demonstrated the role of the organizational factors in the influence of other considered factors on CRM success (financial and marketing results). Literature reviw of Knowlegde management capabilities and organizational variables: CRM techonlogy and Customer orientation
Trainor, K et al - 2014	Social media technology usage and customer relationship performance: A capabilities-based examination of social CRM	How social media technology usage and customer-centric management systems contribute to a firm-level capability of social customer Relationship management (CRM)?	Survey (sample of 308) to top management teams of industries in USA	> Conceptualization and measurement of Social CRM capability and demonstration of the influence of customer-centric management systems and social media technologies in Social CRM capability; > Proved the existence of complementarity between CRM systems and emerging technologies like social media applications	Demonstrated that investement in social media technology can provide firms with relationship management benefits. Social media technology used alone doesn´t have a direct effect on the relationship performance outcomes
Ku, E - 2010	The impact of customer relationship management through implementation of information systems	Determinate How customer-orientated firms uses information systems to affect CRM profitability	Survey (sample of 235) to hotels in Taiwan wich have implemented information systems	> Discovered multidimensional measures of factors that influence CRM profitability through CRM that are intuitively appealing and reliable; > Customer orientation cultuture and information quality as anteceents of CRM influence the lodging industry service process; > CRM success not only considers technology or systems quality but also concerns service concept and operation procedures;	CRM is a top issue for business particularly for the business strategy, information technology and marketing management. Firms must deliver the highest value to customers, by better communication, faster delivery, and personalized products and services. CRM is a cross functional, customer driven, technology-integrated process management strategy that maximizes relationships and includes the entire firm.
Toriani, S and Angeloni, M - 2011	CRM as a Support for Knowledge Management and Customer Relationship	Examine the role of CRM as a support for knowledge management and to develop strategies for relationships with the customer, based on the assumption that they are determining factors for organizations customers;	Survey (sample of 13) to an information technology company in Brazil	> This case study demostrated that the firm has a customer data management systems by ana appropriate technological tool and developr to meet the needs of the company, it works with a model o knowledge management that provives a definition of strategies for customer relationship and perfornance assessment	This a good example of CRM use to support Knowledge management and to develop strategies of relationship wiht customers, but the author recommended some actions to maximize the use o CRM tools for staretgic management
Coltman, T - 2007	Can superior CRM capabilities improve performance in banking	Can Superior Capabilities improve performace in Banking?	Field interviews and a Survey (sample of 45) to Australian Banking industry	> Demonstrated the importance of an clever combination of human and technological capabilities is required to successfully achieved improved performance; > IT Infrastructure is a necessary capability as it does provide a basic for detailed customer information required to support modelling and informed human decision making;	Customer Knowledge alone is no guarantee for success. Top manager in highest performing banks are still skeptical about the potential of CRM to improve productivity and competitive standing. Bringing together the necessary capabilities is not an easy tasks, mas when they are brought together is why CRM can be a source of competitive advantage.
Ritter, T and Andreson,H - 2014	A relationship strategy perspective on relationship portfolios: Linking customer profitability, commitment, and growth potential to relationship strategy	Develop a three dimensional portofolio model for business relationaships wich distinguishes among six diferent categories	Case study - 3 diferent studies	> Based on the assessments of customer profitability, customer commitment, and growth potential, the positioning of the given customer relationship in the portfolio allows managers to determinate appropriate customer relationship strategies and appropriate performance indicators ; > Framework Six-pack portofolio for ralationship strategy development	The development of six-pack portofolio (Based on profitability; commitment and Growth potential) is a usefull tool for managers to gain a better understanding of their customer portofolio and the business potential of this customer portofolio.
Lin, RJ et al - 2010	Customer relationship management and innovation capability: an empirical study	Investigate the effects of various dimensions of customer relationship management (CRM) on innovation capabilities. Five dimensions of CRM and five aspects of innovation capability are identified	Data from 107 Taiwanese computer manufacturers are collected.	> The following results are offered: computer manufacturers in Taiwan perform various levels of CRM and, consequently, display different levels of effects on each of the five innovation capabilities. Generally, firms are able to increase their innovation capability by ad hoc CRM;	The findings suggest that not all CRM activities contribute to innovation programs, which clearly indicates the need for applying other mechanisms, such as supplier integration, to form a complete innovation program. Managers should align the development of their supplier management and CRM practices with the desired innovation capability.

Table 1 - Literature review of CRM linked to Dynamic capabilities

Author	Title	Research question	Researsch Method	Research findings	Some details
Khodakarami, F, 2014	Exploring the role of customer relationship management (CRM) systems in customer knowledge creation	How CRM systems support customer knowledge creation?	Case study in: A) Electornics organization; B) Health organization; C) Education oragnization;	> Analytical capabilities of the CRM system to be effectively must be supported by a volume of customer data and IT skills; >Operational CRM systems strongly support socialization with customers	The author belives that organizations to need DYNAMIC CAPABILITES, to create, acquire, integrate and use knowledge.
Raman, P et al, 2006	Leveraging Crm for Sales: the Role of Organizational Capabilities in Successful Crm Implementation	Exploring the factors tha contribute to succeel CRM implementation as experienced by users in private sector	Interviews by email with CRM experts and CRM users - based on a framework	> In order to transform CRM from a tecnological tool to na advantage-producing resource, the authors set that firms should focus on developing four main organizational capabilities: Organizational learning; Business process orientation; Customer-centric orientation; Task-techonlogy Fit.	The authors determined the four capabilities identified in the paper are essential to a successful implementation of a CRM and gaining a positional market advantage
Kim, B , 2008	Mediated Effects of Customer Orientation on Customer Relationship Management Performance	How customer orientation can simulate employee trainning and customer information processing capability when frims implement CRM?	Interviews to independent restaurant owners and mail survey	> Trainnig orientation and customer-information processing mediate the effect of customer orientation on CRM performance > CRM performance can be achived by a correct processing of customer information. Monitoring emerging and changing customer needs;	The author doesn't use the concept of dynamic capabilities. But he agrees that competitive advantage is connect to committed employees who are cultivated mainly thought training. The author defines Training as a systematic process developing employee knowledge, skills, and attitudes for occupations and tasks to be assigned and future developed.
Yangm Y, 2010	Service capabilities and customer relationship management: an investigation of the banks in Taiwan	Is CRM performance in the banking industry enhanced differently by each independent capabaility in the set: HR, IT, Marketing knowledge and or their interations?	Case study based on a framework to the major players in Taiwan´s banking industry	> CRM lays in the interconnected effect of many fectors, not only IT; > CRM performance is highly effect by HR, IT and Marketing service Capabilities; Banks must build a long term CRM association with their customers	The author demonstrate that banking industry has a great need of capabilities due to the complex and dynamic environment. He try to understand how HR, IT and Marketing knowledge capabilities affect CRM performance. This capabilities are used to meet customer needs and delivery high quality product.
Pedron, C et Caldeira, M, 2009	Customer relationship management adoption: using a dynamic capabilities approach	What are the dynamic capabilities related to a CRM strategy? How a company can use does capabilities?	Case Study in a large telecommunitcation company based on the dynamic capabilities framework	> Organizations must develop an internal culture oriented to customer relationship; > Organizations have a big challenge in hands, How to orchestrate dynamic elements (process; structure and technology) according to their history;	The authors tried to observe CRM as an organizational dynamic capability. The authors believe that organizations who adopt CRM strategy have a competitive environment and the organization should focus on a dynamic model to achieve success.

Table 2 - Literature review of CRM linked with innovation capability

Based on the results from the systematic literature review we developed the interview guide. The interview guide has four main categories of questions (in appendix 1): (1) introduction, (2) CRM in the organization, (2) evaluation of the CRM system and finally (4) CRM and innovation capability. The majority of the questions of the interview guide were adopted from Khodakarami & Chan, (2014), Beldi, et al, (2010), Raman et al., (2006). However, it was necessary to incorporate other questions to achieve the objective set out in this research project and to understand the role of CRM systems in organizational innovation capability.

Given the purpose of this research, non-standardized and semi-structured interviews were conducted. This type of interview is based on key questions that support the conduction of the interview. However, it gives some freedom to the interviewer to adapt the questions and their sequence during the interview process. By using this type of interview, we have the flexibility to adjust the interview guide according to the type of interviewee (Saunders et al. 2012).

This type of interview allows to adapt the questions to the interviews: some questions are appropriate for academics while others would only suit a consultant.

The interviews took place during the period of 13th of August to 10th of September 2015, they were audio-recorded, always with the interviewee´s permission, in order to collect data more accurately and enable verbatim transcription of the interviews (Saunders et al. 2012).

The number of interviews was established considering the saturation effect (Yin, 2009). The saturation point in this research was after 8 interviews. As previously mentioned the interviewee´s were selected due to their knowledge and professional experience, in the table 3 is possible to analyze the profile of each interviewee.

Interview ID	Interviewee profile	Interview location	Date of interview	Duration
E1 - PGA	CRM adacemic	Via Skype	13-08-2015	1 hour
E2 - AM	CRM specialist	Oracle	18-08-2015	1 hour
E3 - JF	Information systems academic	ISEG-UL	26-08-2015	45 minutes
E4 - MR	CRM adacemic	Via Skype	28-08-2015	1 hour
E5 - RL	CRM consultant	Noesis Tagus park	01-09-2015	1 hour
E6 - LG	CRM consultant	Via Skype	02-09-2015	1 hour
E7 - LM	Sales Force director	Makro Portugal	03-09-2015	30 minutes
E8 - PE	CRM consultant	Via Skype	09-09-2015	1 hour

Table 3 - Interviewee´s profile

After each interview it was executed a verbatim transcription to examine the content. We used the NVivo 10 software [3] for the analysis of the transcriptions. This software was selected because it allows to analyze non-numerical and unstructured data (Gibbs, 2002). Additionally, this software permits the execution of the technique and assumptions proposed by Bardin (1977). During the content analysis method we considered all the categories and sub-categories derived from the systematic literature review (Bardin, 1977). According to Gibbs (2009), the addition of new categories could have been taking into consideration but the interviewee´s knowledge did not allow this.

The initial categories and sub-categories used in the analysis were adapted from the research: "Customer relationships management and innovation Capabilities: empirical study" (Lin et al., 2010), previously explained on chapter 2.4.3.

With the results from the content analysis and based on the literature review it was possible to introduce a research model relating the categories and sub-categories to explain "How organizations can create innovation through CRM initiatives?". In the proposed model some hypothesis were set to be tested and evaluated in future research work (chapter 3.3).

3.2. Data Analysis

Concerning theory refinement via interviews and with the help of the Nvivo software, we were able to analyze the relationship between the implementation and usage of CRM systems and the organizational innovation capability.

The results of the eight interviews gave a good set of information and knowledge regarding the problem statement and research question. The Nvivo software assisted the content analysis and enabled the execution of several queries. The queries provided some interesting facts and relations between statements of the interviewees.

The first query performed was a word frequency query. The result of this query can be analyzed in figure 2, the words with higher frequency in the interviews were: CRM; organization; customer; system and capabilities. From the result of this query we can assume that the interview guide and the answers to the questions were aligned with the purpose of this research project – appendix 2.

[3] Nvivo 10 license Key: NVD10 - LZ000 - CH010 - KRU84

For each category and sub-category, a "node" was created in the software and we were able to establish what was said and how many times a particular "node" was mentioned during an interview. To ensure the validity and consistency of this procedure, the analysis was made by reviewing all statements of each interview and classifying the statements according to the categories established by Lin et al (2010). The detailed results of this analysis are presented in table 4.

Node Name	Interview ID								Number of References
	E1 - PGA	E2 - AM	E3 - JF	E4 - MR	E5 - RL	E6 - LG	E7 - LM	E8 - PE	
CRM									
Long-term partnership	✓	✓	✓	✓	✓	✓	✓	✓	28
Information sharing	✓	✓	✓	✓	✓	✓	✓	✓	43
Customer involvement	✓	✓	✓	✓	✓	✓	✓	✓	47
Technology-based CRM	✓	✓	✓	✓	✓	✓	✓	✓	41
Innovation Capability									
Product innovation	✓	✓	✗	✓	✓	✓	✓	✓	27
Process innovation	✓	✓	✓	✓	✓	✓	✓	✓	75
Administrative innovation	✓	✓	✓	✓	✓	✓	✓	✓	38
Marketing innovation	✓	✓	✓	✓	✓	✗	✓	✗	13
Service innovation	✓	✓	✗	✓	✓	✓	✓	✓	25

Table 4 - References made per dimensions and capabilities in the interviews

The results of the procedure described above shows that the academic or professional experience influence the type of knowledge of the interviewee´s. For example an academic specialist in information systems interviewed did not have any statement about product innovation or service innovation. His knowledge and contribution were focused on CRM systems, marketing innovation and process innovation.

Node name	Interviewee profile				
	CRM consultants	CRM acadcemics	CRM specialists	Sales Force director	IT/IS academic
CRM	**60**	**51**	**21**	**19**	**8**
Long-term partnership	12	8	4	3	1
Information sharing	17	12	4	8	2
Customer involvement	19	16	4	6	2
Technology-based CRM	12	15	9	2	3
Innovation Capabilities	**70**	**48**	**27**	**20**	**13**
Product innovation	11	7	6	3	0
Process innovation	30	16	11	11	7
Administrative innovation	14	15	3	3	3
Marketing innovation	2	4	3	1	3
Service innovation	13	6	4	2	0

Table 5 - References made per dimensions and capabilities by interviewee profile

In table 5, it is possible to analyze by interviewee profile how many references were made to each category. The results demonstrated that CRM consultants (3 interviewees) and CRM academic (2 interviewees) were the interviewee´s that contributed most, in term of quantity of references. In this table 5 it is demonstrated again that process innovation and customer involvement are the categories more relevant, regarding the interviewees knowledge. Marketing innovation is the category least referenced, as previously announced. The expertise of each interviewee influenced the final results.

3.2.1. CRM Dimensions and activities

The analysis of the interviews was focused on four CRM dimensions as explained in chapter 2.4.3. The dimensions analyzed are Long-term partnership, Information sharing, Customer involvement and Technology-based CRM. Some other subcategories could be defined but there were not statements to support them.

The dimensions established were supported by all interviewees with direct or indirect references to each category (figure 3). According to the expertise of the interviewees and references made, it is supported the importance of each dimension in CRM systems' implementation and organizations' development.

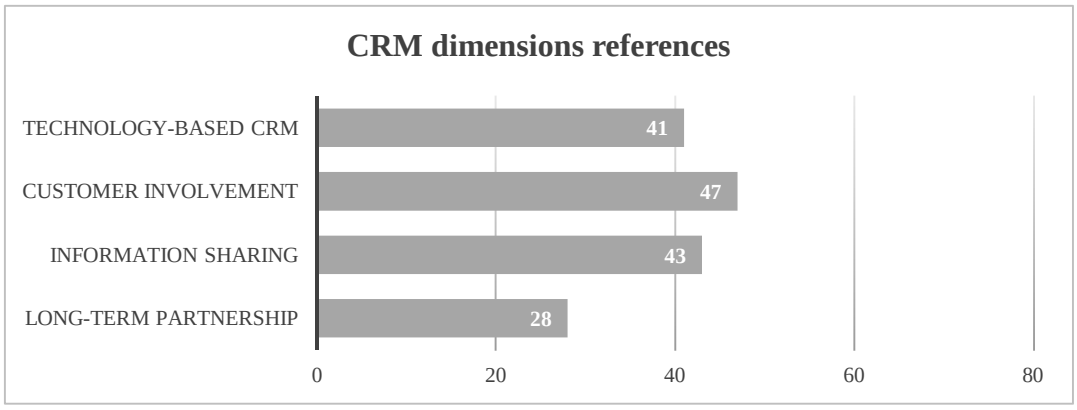


Figure 3 – Distribution of references per CRM dimensions in the interviews

Another important fact is the unanimous opinion that CRM systems can provide several benefits to the organizations, but must be combined with a shift of the internal and external processes of dealing with all stakeholders in the market, especially with customers.

The dimension **long-term partnership** is part of the CRM strategy to achieve innovation capability (Lin et al 2010). The partnership between organization and customers can be improved with the CRM systems. Both clients and organizations have the ability to develop the communication and progress of information between them. This partnership built from both sides brings advantages not only to the client but also to the organization – see table 6.

According to all interviewee´s, CRM systems have the capability of gathering and organizing information that can be used to create a true picture of the customers. It also has the capability of improving the relationship between customer and organization. The customer feedback about products and services has become an important factor when organizations create and introduce new solutions to the market. CRM systems enable the

proper treatment of this feedback while enhancing the success of new products or services.

In terms of **Information sharing**, this dimension may lead to the development of new organizational capabilities (Lin et al., 2010). CRM systems have the competence to create a customer database, and provide a set of tools to manage information. Having information about the market and about customers is important, and the implementation of a CRM system can be a turning point in the organization's capability to manage information. According to the interviewees (E1-PGA, E2-AM, E4-MR and E5-RL), information management is crucial for an organization, not only because of information regarding customers but also for the current necessity of having a single application to manage customers' information across the entire organization.

Dimensions and activities	Sources	References
CRM	**8**	**159**
Long-term partnership	**8**	**28**
Improving management of whatever customers suggest	5	6
Customers provide suggestions for new products and services	5	5
Providing customized products and services to key customers	1	1
Actively stresses customer loyalty or retention programs	2	2
Interactive, two way communications with customers	5	6
Long term development and successes with customers	4	8
Information sharing	**8**	**43**
Sharing information with customers	7	20
Sharing product demand with customers	7	18
Sharing inventory information with customers	0	0
Jointly makes production plans with customers	3	3
Customers warns about events that affect supplying	1	2
Customer involvement	**8**	**47**
Customers involved in NPD activities	1	1
Customers involved periodically reviewing operations	8	20
Customers involved in the modification of products	3	5
Customers involved regarding market evaluations	5	12
Customers involved regarding processing technology	6	9
Technology-based CRM	**8**	**41**
Call center and contact centers used to deal with interactions with customers	2	2
Sales force automation to analyses customer trade-off and all interactions	7	10
MIS to collect customer trade-off information and to integrate databases	6	15
Integrated CRM evaluation system	5	6
Perfect web-based customer interaction	2	3
Data warehousing and Data mining to identify potential customers	5	5

Table 6 - Interviewees references made by CRM dimensions and activities

During the interviews, all interviewees referred to the relevance of having an information system, like a CRM application, to centralize information about customers, products, services and processes. For some interviewees, the capability of information management is one of the main attributes that organizations look for when developing and implementing CRM system – see table 6.

The process of transforming information into knowledge for the business is complicated, according to some interviewees (E2-AM and E4-MR). CRM systems have the ability to enforce this kind of process.

Customer involvement dimension has a connection with long-term partnership, because it refers to how the customers are used for the creation and development of products, and this only happens where there is a strong partnership between organization and their customers (Lin et al. 2010).

Several interviewees (E1-PGA, E2-AM and E4 –MR) gave the example of the telecom sector in Portugal, a sector with a high level of competition between all the three main players (Vodafone; Meo and NOS) where the customer involvement on the development of new solutions has become critical in order to maintain market share and competitive advantages. With customer involvement the organization is more ready to adapt its offers to the market trends or customize it to meet a specific customer need.

According to references from interviews (E4-MR), "customer involvement is a process that requires time". With the implementation of a CRM system the process may have two kinds of outcomes: it can improve customer involvement and be a success or, in some cases, be a complete failure taking the organization to a setback in the relationship with their customers (see table 6).

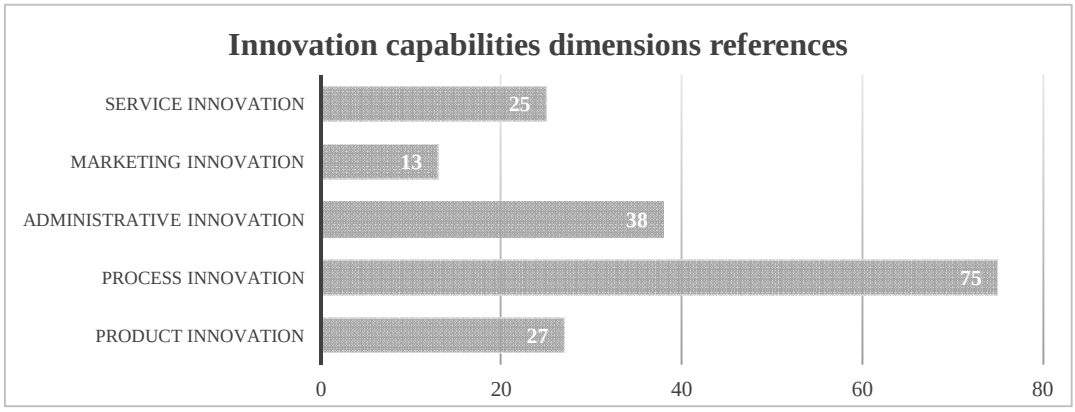
Finally, **Technology-based CRM** dimension is not directly referenced during the interviews. The investment in technology is a sensible subject to discuss when associated with CRM, due to the complexity of the implementation project (Maklan, 2005). In the literature review and also based on the interviews, CRM is assumed to be an organizational strategy or new mindset, and not an information technology application.

For all the interviewees, CRM is seen as an organizational strategy that can take a business model to a different level, more focused on the clients and their needs. According to them, a CRM system only supports and facilitates the implementation of that strategy based on new organizational processes oriented to customers. The information systems academics interviewed often mentioned that technology does not resolve organizational problems but it can help improve business processes.

CRM systems are, for all interviewees, good information applications that can bring benefits to the organization if the organization is able to perform structural changes before using the technology. The technological application adapts to the business processes, not the other way around – (table 6).

3.2.2. Innovation Capabilities

The innovative capabilities taken into account and analyzed in this research project were: Product innovation, Process innovation, Marketing innovation, Service innovation and Administrative innovation. Some other subcategories could have been defined but there were not enough statements to support them. The innovation capabilities established were supported by the interviewee`s, with direct or indirect references to each category (figure 4).



During the interview phase, all interviewees were asked the same question: "How would you describe innovation capability?". The answers to this particular question were very enriching and exposed a wide range of ways to explain the concept. Some answers were more elaborate than others, but we were able to support the definition established in chapter 2.3.

Innovation capability, according to the interviewees, is the ability of an organization to use process, technology or person to operate more efficiently, better or different in order to create or bring more value to the company; this value can be financial, procedural or both.

The first capability under analysis is **Product innovation** – it refers to the ability of an organization to present and launch new products and also enlarge the market (Lin et al, 2010). The contribution of CRM systems can be a good source of product innovation due to the analytical capabilities of this kind of systems and especially due to a different way of interaction with customers – (see table 7).

According to some of the interviewees (E1-PGA, E2-MA, E4-MR and E5-RL) the change in ways organizations are dealing with customers is a platform for innovation. This is due to the partnership that is established between the customer and the

organization. Currently, with all the communication channels that organizations use to interact with customers and the amount of information shared, product innovation can be improved with the use of CRM systems.

Dimensions	Sources	References
Innovation Capability	**8**	**178**
Product innovation	**7**	**27**
Launch new products	4	6
Extends number of product lines	5	7
Engages in NPD to obtain patents	0	0
Enlarges new markets	4	4
Launch customized products according to market demands	6	10
Process innovation	**8**	**75**
New process technology	8	40
Obtain process technology patents	0	0
Adopt advanced CAD/CAM equipment	0	0
Adopt advanced real-time process control technology	7	21
Import advance programmable equipment	6	14
Administrative innovation	**8**	**38**
Adopt innovative reward systems	0	0
Adopt innovative work designs	3	5
Adopt innovative administration aiming at NPD	0	0
Engages in organizational reconstruction for pursuing operational efficiency	8	16
Engages in business process re-engineering	8	17
Marketing innovation	**6**	**13**
Leads innovative prancing methods in markets	0	0
Leads innovative distributing methods to markets	0	0
Leads innovative promoting methods to markets	2	3
Continually enlarges potential demand market	3	4
Utilizes advances CRM systems in markets	5	6
Service innovation	**7**	**25**
Imports innovative systems to enhancing customer satisfaction	7	13
Imports innovative claim clearing procedures and methods	2	5
Imports innovative sales support service methods	5	7
Adopts innovative order management and follow-up systems	0	0

Table 7 - Interviewees references made by innovation capabilities and activities

The second capability analyzed is **Process innovation**. This capability was the most referenced one during the interviews, with 75 references to it (see Table 7). It is about new organizational process technology, upgrades and changes in organizational process, and also advanced real-time process control technology.

By analyzing the references made regarding this capability, one is able to understand how critical are business processes to an organization and furthermore the continuous adaptation of those processes to customers and market changes. According to interviewees (E1-PGA, E2-AM, E3-JF, E4-MR, E5-RL and E8-PE), technology does not fix organizational and structural problems. Therefore, it is essential that organizations solve their structural problems before investing in technology and, particularly, CRM systems.

Companies must be organizationally mature and have business processes that are fully implemented and tested in order to succeed technologically.

CRM systems can be a trigger for many improvements in organizational processes, especially processes regarding customers and their information. These improvements can be sensed in processes of information management and sales automation, enabling workers to performer less routine activities, according to the interviewees (E4-MR, E5-RL, E8-PE).

Another aspect that CRM systems improve in terms of process innovation is real-time process control towards customers. This improvement has a direct impact on the response timing to customer's solicitations for example – see table 7.

The capability, **Administrative innovation** is the ability of an organization to execute and adopt new work methodology and to achieve operational efficiency (Lin et al.2010). This means exploring the current business plan of the organization and try to find innovative ways of executing the business processes to achieve efficiency.

The interviewee, E4-MR, referred that administrative innovation "can be improved with CRM systems regarding the business processes associated with customers". CRM systems can help an organization achieve operational efficiency through operational reconstruction and business process re-engineering.

The operational reconstruction and business process reengineer must be supported along the organization structure to succeed, and have to be aligned with business strategy. CRM system implementation must be part of that strategy to accomplish operational efficiency, otherwise the CRM is going to fail and business processes will be inefficient, according to the interviewees – see table 7.

Marketing innovation was the less mentioned capability, during the interviews. This capability concerns the ability of an organization to innovate in pricing and promotion methods and also the ability to enlarge potential market demands (Lin et al.2010). Even though it is the least referenced capability, it is extremely important because marketing is about customers and which product or services are suitable for each client, and CRM systems provide better knowledge about it.

According to the interviewees (E1-PGA, E4-MR and E5-RL), CRM systems can create an internal and external dynamic interdepartmental interaction, where marketing assumes a relevant part on the interaction and support of that dynamic. CRM systems must be transversal in the organization, and marketing must improve their processes to improve the content creation based on customer feedback and internal experience – see table 7.

Finally, **Service innovatio**n is the ability of an organization to enhance customer satisfaction. Improving customer satisfaction must be a continuous process (Lin et al.2010). A business plan only works when customers are satisfied at all levels, according to some of the interviewees (E4-MR and E5-RL).

Service innovation can be accomplished with technological resources, like a CRM system. Since CRM systems can potentially increase the relationship with customers, this kind of information systems are suitable to enhance customer's satisfaction, again according to the responses from the interviews – see table 7.

3.3. Proposed Research Framework

Based on a deep analysis of the interviews content of each CRM dimension and activities as well as on Innovation dimensions presented on chapter 3.2.1 and 3.2.2, respectively, we developed a conceptual model regarding the relationship between CRM and innovation capabilities. As explained before, Lin et al. (2010) presented a conceptual model regarding the relationship of CRM and innovation capabilities. The conceptual model proposed here is based on the information retrieved from eight interviews made in Portugal to professionals with knowledge in CRM and was adapted from the previous study of Lin et al. (2010) incorporating the dynamic capabilities framework of Teece (2007) – Figure 5.

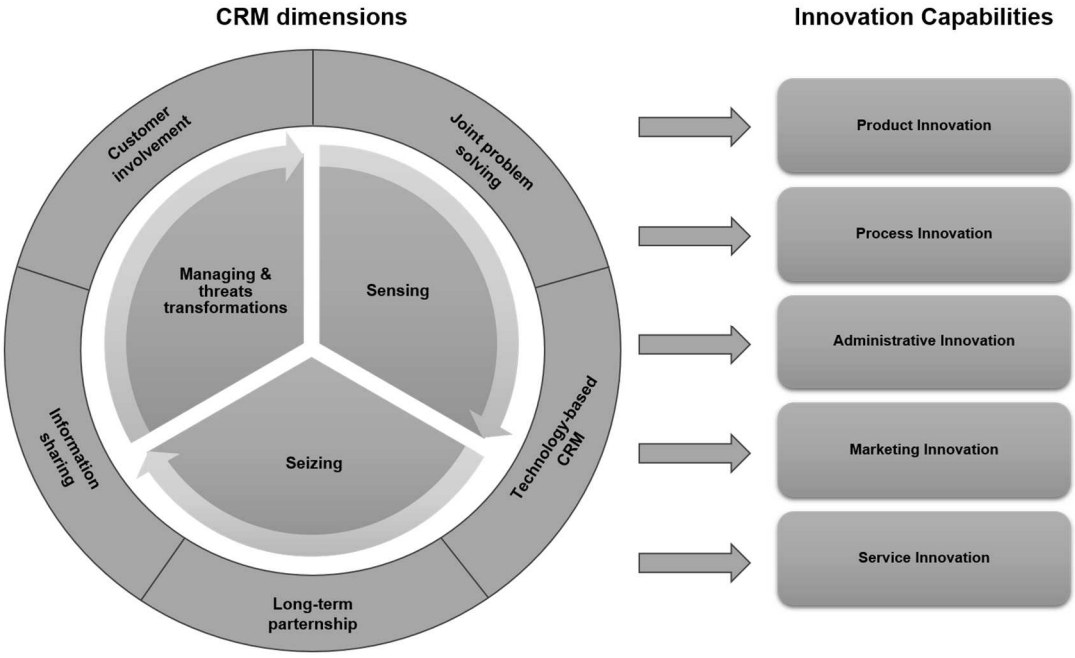


Figure 5 - Proposed model linking CRM systems and Dynamic capabilities
(Adapted from Lin et al (2010) & Teece (2007))

The proposed model reflects the content analysis made to the interviews and determines the possible influence of CRM systems dimensions and activities in organizational innovation capabilities. As previously introduces all categories can have a particular role in the organization strategy to achieve the main goal. However, is important to reference that only a dynamic combination of all categories can provide a continuous and sustainable, organizational innovation capability.

The introduction of the Dynamic capabilities framework in the proposed model was supported by the fact that only with a dynamic search for opportunities and managing threats, can a CRM strategy succeed and achieve innovation capability, according to the content analysis. This dynamic procedure must be a mixture of all tree elements of the framework (seizing, sensing and managing threats and transformations) and their own microfoundations.

Another particular aspect of this proposed model is that the implementation or usage of CRM systems may help an organization achieve organizational innovation, if the model run is dynamic over time and over market changes.

Hypotheses Code	Hypotheses
HI1	The excellence in CRM improves the organization's capability of sensing and shaping opportunities.
HI2	The excellence in CRM improves the organization's capability of seizing opportunities.
HI3	The excellence in CRM improves the organization's capability of reconfiguring assets and organizational structure
HI4	The excellence in CRM improves the organization's capability of sensing and managing threats.
HI5	The capability of sensing and managing threats enhances the organization's innovation capability.
HI6	The capability of sensing and shaping opportunities enhances the organization's innovation capability.
HI7	The capability of seizing opportunities enhances the organization's innovation capability.
HI8	The capability of reconfiguring assets and organizational structure enhances the organization's innovation capability.

Table 8 - Hypothesis proposed to future work (adapted from Lin et al. – 2010)

With the CRM dimensions and innovation capabilities referenced in the interview phase we were able to suggest 8 hypothesis to be tested in future phases of this research project.

If the group of hypotheses are proven to be true, only then can we ensure that CRM systems can help companies build and develop innovation capabilities. Otherwise the proposed model cannot be applied in an organizational environment and cannot support the investment in CRM systems to support innovation capabilities.

4. Final Remarks

4.1. Research implications

Even though the sample of interviews is small, this research project allow us to build an understanding of the CRM systems capabilities in organizational innovation capabilities in Portugal. The methodology applied in this research paper permits a deeper understanding of the theoretical background in resource based view theory, dynamic capabilities framework, innovation capabilities and also CRM. Due to the few project researches in the area of CRM and Innovation capability, the model proposed linking this two concepts and the dynamic capabilities framework.

The capabilities and benefits of CRM systems to companies were taken in perspective by consultants, academics and managers during the interviewees. Concerning the expertise of each interviewee, it was possible to understand which capabilities influence the ability of a company to achieve organizational innovation capability throughout the implementation and usage of CRM systems.

The results of the interview stated that innovation is a crucial point in the business strategy of a company nowadays, due to the high dynamic of changes in the market and customer's needs. For this reason, the continuous process of search and development of new product and new services (dynamic capability framework), based on customer feedback can improve the market share and customer satisfaction.

CRM systems have capabilities to help organizations achieve their objectives, but as referenced several times in this research project, technology is not the solution for structural problems. The alignment of the business process and technological application is critical for the success of a business model or business strategy.

In this project research were also introduces research hypothesis to be proven in future work. The hypothesis announces were the result of the Theoretical background and the analyses made to the interviews

4.2. Research limitations

This research work has limitations. The interviews were performed to eight experts with knowledge in CRM and this sample does not characterize the whole universe of companies that use CRM systems. Even with a small sample of interviewees, regarding the saturation effect, the results can be statements of the reality of CRM systems adoption in Portugal.

Another limitation of this research work is the fact that the data analysis was made only for one country (Portugal) and due to the small market size of this country, CRM capabilities are not fully implemented in the majority of the companies, according to the experts interviewed.

The final limitation, was the size limit of this work. The theoretical background should be deeper and more detailed, but there is a lack of analysis about the link between CRM and innovation capabilities in the academic literature.

4.3. Future work

This research work is part of an international research project. Regarding the results of this research, particularly to the extent of the literature review and the proposed model linking CRM systems adoption and the usage and innovation capabilities, there is future work to be developed. Along with the model development, research hypothesis were suggested. These are to be proven and validated for the alignment of the proposed model with the market reality in Portugal and in Brazil.

The future work to be held will have the objective to validate the conceptual model, to assess the organizational innovation capability resulted from CRM system adoption. To achieve this objective, it is going to be conducted a survey with Portuguese and Brazilian CRM managers, in the areas of telecommunications and banking mostly.

The results of the survey will be analyzed using an adequate statistical analysis technique (possible structured equation modelling) to verify the validity of the research model and to test the research hypothesis that we put forward in this research.

After the quantitative analysis the proposed model can be updated according to the results and finally add to literature a sustained conceptual model linking CRM systems adoption an organizational innovation capability.

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6. Appendixes

6.1. Appendix 1: interview guide

Introduction: (understand the use and Knowledge of the person being interviewed)

1. Can you please describe your experience with IT?
2. Can you please explain your role on IT projects?
3. What is your understanding about CRM?
4. On a daily basis, how often do you use CRM systems?

   Khodakarami, F and Chan, Y, 2014
5. Which CRM system does your organization work with? Which tools do you use? For how long?

   Adapted from Khodakarami, F and Chan, Y, 2014
6. Which were the objectives for CRM adoption in your organization? For what purposes do you use each system? Could you give some examples?

   Adapted from Khodakarami, F and Chan, Y, 2014

CRM in the organization:

7. Are you satisfied with your (company) CRM solution?

   Raman, P and Wittmann, M and Rauseo, A , 2006
8. What business processes did the CRM system change? Can you evaluate how many business processes are supported by CRM system?

   Beldi, A, et al – 2010
9. Could you give some explanation of how did the CRM system change business processes? Could you please give some examples?

   Adapted from Beldi, A, et al – 2010
10. How would you describe CRM system capabilities?
11. What is your opinion about the degree of utilization of the CRM system capabilities?

    Beldi, A, et al – 2010
12. Does the CRM system contribute to the improvement of processes and value creation within the company? If yes, please describe how and give some examples.

    Beldi, A, et al – 2010

Evaluation of CRM systems:

13. What benefits do CRM systems provide for you and your organization?

    Khodakarami, F and Chan, Y, 2014
14. To what extent do CRM systems successfully and effectively support knowledge creation activities within your department or in the whole organization? Specifically, could you please give examples for each of the following questions:
    (a) Do CRM systems help you gather information and create knowledge that you did not previously have about your customers?
    (b) Do they give you any information from your customers that you previously did not receive?
    (c) Do they provide new knowledge that you can share with customers (i.e., knowledge for customers) that you could not previously share with them?

    Khodakarami, F and Chan, Y, 2014
15. In your opinion, what are the strengths and weaknesses of your organization's current CRM systems in regard to customer knowledge creation opportunities, analytical capabilities, collaborative capabilities and operational capabilities?

    Khodakarami, F and Chan, Y, 2014

16. In general, are you satisfied with your organization's CRM systems capabilities?

Khodakarami, F and Chan, Y, 2014

17. Which organizational factors may have some influence on CRM capabilities?
18. How do you think that organizational learning capability is important to CRM success and competitive advantage' How?

Raman et al., 2006

19. How do you think that business process orientation capability is important to CRM success and competitive advantage' How?

Raman et al., 2006

20. How do you think that customer-centric capability is important to CRM success and competitive advantage' How?

Raman et al., 2006

21. How do you think that task-technology fit capability is important to CRM success and competitive advantage' How?

Raman et al., 2006

22. How do you measure CRM capability in your organization?

CRM and Innovation Capabilities

23. How would you describe innovation capability?
24. How innovation capability is measured in your organization?
25. Does CRM systems give the organization the ability to come up with ideas consistently? If yes, please describe how and why.
26. What are your suggestions for improving CRM systems to match your requirements for knowledge creation?

Khodakarami, F and Chan, Y, 2014

27. How does CRM systems can support your organization R&D activities? What about service improvements and new product development?
28. "Social Capital is a unique resource for an organization" (Adler, P and kwon, S 2002). Do you support this statement? If yes, how can CRM systems create, develop and elevate the Social Capital of your organization?
29. Do you think that CRM capability is important to achieve innovation capability and competitive advantages? If you do, how does CRM help your organization to achieve innovation capabilities?
30. Do you think that there is a relationship between CRM system capabilities and innovation capabilities? In which ways?
31. Is innovation capability important for your organization to achieve competitive advantages? I which ways?

6.2 Appendix 2: Foundation for the cloud word

Word	Count	Weighted Percentage (%)
CRM	453	2,77
Organization	355	2,17
Customer	298	1,82
System	266	1,63
Capabilities	184	1,13
Process	176	1,08
Question	169	1,03
Knowledge	125	0,76
Information	80	0,49
Business	79	0,48
Product	71	0,43
Project	70	0,43
People	66	0,40
Sales	64	0,39
Management	60	0,37
Objectives	60	0,37
Innovation	59	0,36
Company	58	0,35
Create	57	0,35
Relationship	56	0,34
Example	55	0,34
Value	50	0,31
Creation	49	0,30
Basis	43	0,25
Market	40	0,24
Capital	37	0,23
New	36	0,22
Data	35	0,21
Competitive	34	0,21
Tools	33	0,20

Table 9 - Cloud words most referenced in the interviews (Nvivo 10 output) - Basis