Business Value of the CRM Approach : the Case of 5 Stars Hotels in Lebanon

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UNIVERSITÉ DE GRENOBLE

THÈSE

Pour obtenir le grade de

DOCTEUR DE L'UNIVERSITÉ DE GRENOBLE

Spécialité : **Sciences de Gestion**

Arrêté ministériel du 7 août 2006

Présentée par

Imad NAKHOUL

Thèse dirigée par Mr. **Marc FAVIER**

préparée au sein du **Centre d'Etudes et de Recherches Appliquées à la Gestion (CERAG)**
dans **l'École Doctorale Sciences de Gestion (ED 275)**

Business Value of the CRM Approach – The Case of 5 Stars Hotels in Lebanon

Thèse soutenue publiquement le **Jeudi, 31 Mars 2011**,
devant le jury composé de :

Mr. Michel LEONARD
Professeur, Université de Genève - Hautes Etudes Commerciales (HEC), Rapporteur
Mr. Jean MOSCAROLA
Professeur, Université de Savoie, Rapporteur
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Art is a step from what is obvious
and well-known toward what
is arcane and concealed
(Gibran Khalil Gibran)

Knowledge in people's heads
can be put to use; it is alive
Knowledge on disk is data
Data is by definition dead
-an artifact (Scott, 2001)

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INTRODUCTION

The acceleration of the globalization of businesses and the evolving recognition concerning the importance of customer relationship economics have yielded towards a change in organizational management. This pattern is forcing organizations to place larger emphasis on building valuable customer relationships. Grönroos (1997) refers to this change as a marketing change, also known as paradigm shift from product-focused to a customer-focused view. This model of management suggests that the organizations concentrate much more attention on their customers' needs and that the only root for business survival is to focus attention on the attraction and retention of customers through personalized services (Roberts, 2003).

In competitive markets, the critical endeavor for all enterprises is to focus their attention on the attraction and retention of customers, and this through creating more value for the customer. Delivering high customer value means that organizations are meeting the customer's expectation which will lead to better customer satisfaction and thus better finances (Kotler, 2000). Bose (2002) points out to the greater attention firms are taking in order to attract and retain customer, and added that firms will be driven more and more by individual customer preferences. The customer becomes the strategic partner of the company which must make long-term commitments for the purpose of maintaining those customers through keeping up relationships with quality, service, and innovation (Anderson and Narus, 1991).

This is the base of the relationship marketing since it was developed on the basis that customers vary in their needs, preferences, buying behaviors and price sensitivity. The concentration on building beneficial relations with customers is not a new approach in the field of business. The increasing competition and decreasing customer loyalty have shaped the need for implementing new tools to help companies to succeed the competition and win customer loyalty by providing more customized products and services. The goal of relational marketing is the focus on customer loyalty (Asuncion et al., 2004) and customers who result from successful relationships prove to have more loyalty (Newell, 2000) and are less likely to defect, provided the organization continues to offer quality service.

The relationship marketing is viewed as an organizing philosophy that emphasizes on customer retention. And the implementation of such a philosophy is characterized by the Customer Relationship Management (CRM) approach (Ryals and Knox, 2001; Ryals and Payne, 2001).

CRM is based on the philosophy of the relationship marketing that aims to create, develop and enhance relationships with targeted customers. This approach is intended to enhance and maximize the customer value, leading to corporate profitability (Frow and Payne, 2004). In practice, the purpose of this philosophy is to improve the customer's relational experience with the company, which is expected to turn into more satisfaction (Oliver, 1996), which leads to enhanced loyalty, and profit boost (Chou et al., 2002). Besides, the intangible aspects of the relationship with the customer is not easily duplicated by the competition, and thus providing the firm with a unique competitive advantage (Kanji, 1998; Roberts et al., 2003).

The Customer Relationship Management is of vital importance to organizations. An effective CRM requires customer-centric business approach to support effective marketing, sales and service processes (Carolyn et al., 2003). But being customer focused may not yield into profitable relationships (Bull, 2003); as a matter of choice, a firm must be capable of gathering knowledge about its current and prospective customers and applying that knowledge to shape its subsequent interactions with them.

The information age reigning nowadays permits the organization to have unprecedented access to transaction data. However, rare are the firms that transform that data into knowledge that can inform business decisions and create positive results (Davenport et al., 2001). Having knowledge about customers' preferences, needs and tendencies are deemed to be critical for customer centric firms and for long term business success (Nargundkar and Srivastava, 2002). The advances in information and communication technologies (ICT) that facilitate the business-customer interaction have provided organizations with more capabilities to manage with increasing knowledge acquired by customers and the changing nature of their demands for services. According to Reinartz et al. (2004), the ICT has the potential to constitute a sustainable competitive advantage and, in customer-focused companies, is deployed for the specific purpose of better initiating, maintaining, and terminating customer relationships.

Establishing, maintaining, enhancing and terminating customer relationships have always been an important aspect for a customer-centric business, and CRM system is one type of information systems that enables and support the adoption of such an approach. The management of customer relationships is costly and precious to organizations and has become a key aspect of most firms, prompting an extensive deployment of CRM systems (Kim et al., 2003; Morgan and Hunt, 1994).

With the advances in technology and the emphasis of relational marketing, the customer relationship management development, implementations, and focus have expanded at a phenomenal rate (Chalmeta, 2006; Palmatier et al., 2006; Payne and Frow, 2005; Zablah et al., 2004). This development is based on the view that customer relationships are important contributors to customer loyalty which leads in turn to corporate profitability and that information systems applications are an enabler to building strong customer relationships. The idea behind the implementation of CRM is that the company will be able to understand the customers from a strategic perspective and will effectively turn the collected data into customer knowledge to more efficiently manage the customer relationships (Galbreath and Rogers, 1999).

Many believe that CRM is a process and that buyer-seller relationships develop over time and must evolve to persist (Day and Van den Bulte, 2002; Galbreath and Rogers, 1999; Shaw, 2003). Another view of the CRM is that it is a strategy and that a customer's lifetime value determines the amount and kinds of resources that a firm invests in a particular relationship (Adenbajo, 2003; CRM Guru, 2003; Croteau and Li, 2003; Kracklauer et al., 2001; Verhoef and Donkers, 2001). Other consider that the CRM is a capability, and that long-term profitable relationships result only when firms are able to continuously adapt their behavior towards individual customers (Peppers et al., 1999). CRM is also considered as a philosophy, where customer retention is best achieved through a focus on relationship building and maintenance (Fairhurst, 2001; Hasan, 2003; Piccoli et al., 2003). And since the CRM is heavily linked to the ICT, many consider that customer relationship management is a technology, and that knowledge and interaction management technologies represent the key resources that a firm needs to build long-term, profitable customer relationships (Gefen and Ridings, 2002; Shoemaker, 2001). The many visions concerning the CRM reflect the significant increase of interest towards this approach.

In spite of the many definitions we can locate in the related research, defining CRM remains a difficult task (Payne and Frow, 2005) and the highly inconsistent and fragmented literature on CRM conducts towards the conclusion that a common conceptualization of the CRM is still lacking (Zablah et al., 2004; Bull, 2003). Nevertheless, the base of interest in the CRM is the information system and the technological orientation of the customer relationships management approach. The CRM technology offers the potential for substantial benefits to corporations through improved customer relationships, customer retention, satisfaction and enhanced profitability (Bohling et al., 2006; Payne and Frow, 2005). The advancements in ICT enable organizations to create practical customer relationship management. The technology provides the opportunity to establish, maintain, and enhance long term, beneficial interactions with customers (Peppers et al., 1999; Reinartz and Kumar, 2000). The CRM systems are considered as the integral component of the customer centric enterprise (Ling and Yen, 2001). A confirmation of the essential role of technologies in the customer centric approach is that the use of ICT in marketing can lead to improved performance in the business as well as better customer service (Berkley and Gupta, 1994; Domegan, 1996; Ryals and Payne, 2001).

Despite the technological advances and the extensive investments in CRM, the approach of Customer Relationship management faces serious difficulties and implementation failures (Davids, 1999; Doherty and Lockett, 2007; Ragowsky and Somers, 2002). It has been estimated that nearly 80% of all CRM projects fail to meet the expected business goals and do not yield into any benefit (Bush et al., 2005; Davis, 2002; Seligman, 2002). The Data Warehousing Institute (2000) conducted a survey on 1,500 companies and found that 91% of them plan to or have deployed CRM technology; however 41% of the firms practicing CRM were experiencing significant problems.

But, on the other hand, a handful of successful Customer relationship management projects were giving both a proof-of-concept and a guideline for a successful CRM implementation (Kotorov, 2003). And as a result from both conclusions, the impact of the CRM on the organizational performance remains a problem of questioning.

In spite of the mixed reviews regarding its effectiveness, companies continue to implement CRM and the associated technology in an attempt to improve business performance (Bohling et al., 2006; Boulding et al. 2005; Reinartz et al., 2004).

There is a growing concern that recognizes the need of organizations to be more customer-centric and to focus more on long-term relationships (Day et al., 2004; Mithas et al., 2005). In addition, the successful projects created organizational improvements, making the implementation of Customer relationship management an absolute survival necessity. This drift led and is still leading businesses to adopt CRM systems to gather, organize, understand, anticipate and respond to the constant evolution of customers' requirements and demands (Reinartz and Chugh, 2002).

CRM approaches have emerged as strategic and high priority projects in an increasing number of organizations (Coltman, 2007). Companies are employing CRM approaches for the reason of their potential business value. Successful CRM approach is believed to increase customer loyalty, enhance customer retention, acquire new customers and grow the existing relationship with customers. Moreover, CRM is believed to have benefits and opportunities enhancement of the different functions in the company such as marketing, sales and service functions. The several perceived benefits have led to the expansion of interest in CRM approaches (Gartner, 2009).

The majority of companies are enthusiastic about implementing CRM, but the work involved to bring such a system to reality demands an enormous deal of varied knowledge, project management and a meticulous plan (Bose, 2002). The extant literature suggests that the implementation of CRM impacts a number of functions within an organization including sales, marketing, service, and Information Systems. The relative success of CRM initiatives has suggested that people, processes, and technology are key elements to consider for the implementation of the CRM (Bose, 2002; Campbell, 2003; Chen and Popovich, 2003; Plakoyiannaki and Tzokas, 2002). The study of what they imply and how they are being approached by different companies becomes relevant in order to increment success of CRM implementation in the future.

Although organizations increasingly invest in CRM, very little is known about its indispensable elements. CRM expenditures, like in any other IT innovation, represent a considerable investment for organizations that need to be justified. The large body of research on CRM has provided mixed evidence on the business value of CRM, calling for further research on this essential issue (Mithas et al., 2005; Romano and Fjermestad, 2006). Furthermore, research has not produced convincing evidence on the business value of the

CRM approach, leading to growing concerns among executives that CRM may not have a significant impact on organizational performance, and calling for further research on this issue (Mithas et al., 2005; Romano and Fjermestad, 2006).

This fragmentation of opinions regarding the Customer Relationship Management approach, its success and impact on the organization have fed our primordial questioning concerning the Business Value of the Customer Relationship Management. Additionally, and as earlier findings have revealed, the IS/IT cannot yield to organizational performance, and further research is needed in questioning the organizational factors responsible for a beneficial information systems initiatives, we will investigate also this direction to try to join the numerous researchers who tried to identify key areas that are essential for the organization in order to succeed in its CRM approach.

According to Bose (2002) service firms are regarded as companies that most likely to benefit from CRM implementation due to the fact that they collect and accumulate a lot of data on each customer. The service industry is growing and dominating world economy, and generally speaking, it is no doubt that customer relationship is one of the most important factors to construct the core of competitiveness, especially in service industries for running business forever (Chang et al., 2009).

The emergence of service economy is a global phenomenon. The service sector accounts the big part of GNP and of the work force in most countries. The service sector contributes to 60-70 percent of the GDP of economically advanced nations of Western Europe, United States, Canada, and Japan. The increasing contribution of service sector is not limited to developed countries. Service sector in developing economies, like China, Brazil, Lebanon, India, Indonesia, Philippines and Thailand, contributes around 50% and more of GDP (e.g.: 54% in Philippines, 48% in and 68% in Lebanon).

The shift from manufacturing to services was spread over a few decades of the last century. The growing importance of services resulted in greater customer orientation and a shift from product concentration towards putting the customer in the heart of the organization. In services, companies need to be closer to customers to deliver the expected offering. The customer perceives the production process as part of service consumption, not just the outcome of production process as in traditional marketing of physical goods. Therefore, it is not surprising that service businesses like hotels, airlines, banking, financial

services, telecom and retailing were the early adopters of CRM. Lin and Su (2003) state that, in high quality hotel enterprises application of CRM is a great opportunity to increase customer value and provides a way to systematically attract, acquire and retain customers. Cuthbertson and Laine (2004, p.303) state that CRM has the potential to help strengthen loyalty and build profitability, though it can be very expensive to implement.

Advances in information technology especially the rapid growth of the Internet usage, improved production capabilities, demanding customers and accelerated flow of capital across political boundaries create business opportunities and fuel competition as well (Rodie and Martin, 2001). According to them, the service sector is considered as one of the most challenging and competitive landscape, and like all businesses services firms face some degree of competition. The ability to view all customer interactions and information is essential to providing a high quality of services. Moreover, in today's knowledge oriented economy, service firms must implement a comprehensive CRM integrated solution that involves all departments, working as a team and sharing information to provide a single view of the customer (Yusuf et al., 2004).

In specific, the hotel industry is experiencing increased competition, globalization, and higher customer turn over, growing customer acquisition costs and rising customer expectations meaning that hotels' performance is significantly dependent on their ability to satisfy customer (Olsen and Connolly, 2000; Gilmore and Pine, 1997). Managing and leveraging the data collected from the hotel's guest to enable the organization to improve the guest experience is the priority of many hotels.

The hyper competitive economy has intensified the importance of identifying factors that provide hotels with long-term competitive advantage, and CRM has become a common topic in board rooms and management meetings since effective CRM represents a potential source of competitive advantage (Grant, 1991; Teece et al., 1997). According to Haley and Watson (2002), CRM is the hot new technology tool for hotel companies towards performance. It helps in optimizing occupancy, increase productivity, satisfaction and loyalty (Cuddihy, 2005) leading to increased hotel profitability (Siguaw and Enz, 1999).

In an examination concerning the hotel market, Deloitte (2010) has confirmed that hotels in the Middle East have achieved the highest occupancy and RevPAR (Revenue per available room) in 2009 with Beirut (Lebanon's capital) reporting the strongest increases in

the region and the world for the second consecutive year. Lebanon posted the highest rate of growth in tourist arrivals in the world—a spectacular 39% increase. Furthermore, this growth continues, and the first quarter of 2010 marked a 37% growth over 2009 (source the Lebanese Ministry of Tourism).

According to the above orientation concerning the service sector and the Lebanese hotel sector, we adapted our primordial questioning to address the Business Value of the CRM Approach in Hotels.

1.1 RESEARCH PROBLEM

As mentioned, customer relationship marketing (CRM) has become a number one focus for organizations as today's competitive markets were getting more saturated and aggressive. With the shift from a product-centered era to the customer-centered one, the objective became to amaze customers by anticipating and fulfilling their needs (Hamel and Prahalad, 1994).

Advances in technology, especially the Internet have greatly enhanced the flow of dialogue, and the capture, interpretation and dissemination of information (Frow and Payne, 2004). The new technologies including the use of the World Wide Web have allowed companies to reach customers in previously inaccessible markets, and to compete efficiently with the traditional suppliers (Gurau 2003). On the other hand, the computer technology and the Internet applications have offered for the first time in marketing's history the possibility to collect, process, analyze, and efficiently use large volumes of data, and to adopt a personalized marketing approach for every customer (Rayport and Jaworski, 2001). According to Abbott et al. (2001), the way customer knowledge is handled becomes more and more critical to businesses. And without the right implementation process, tools and systems accessing this data are largely wasted.

As customers become more and more sophisticated and products more and more commoditized, service becomes dominant. Customer retention is critical and this requires loyalty which is brought about by great service, trust and, to different degrees, personalization (Abbott et al., 2001).

A whole new world of demands has risen and business rush into the implementation of the Customer Relationship Management. Even though the level of satisfaction with CRM implementation has not shown the best results, companies, more specifically hotels, keep investing enormous amounts of money in the hope that this will bring them a strategic advantage. **Therefore, the investigation on the "Business Value of Customer Relationship Management Approach – The Case of 5 Stars Hotels in Lebanon" becomes more relevant**.

The purpose of this research is to conceptualize the Business Value of the CRM, to investigate organizational, orientation, and technological context variables that influence the CRM activity, and to examine the organizational impact of CRM activity and its prerequisites.

The research objectives can then be stated as follows:

- To delineate the Customer Relationship Management approach
- To develop a conceptual framework that defines the CRM Business Value
- To delineate the CRM prerequisites
- To develop a research model based on the conceptual model and the CRM essentials and to empirically test the research model and hypotheses
- To explore the CRM Business Value

This research will focus on the experience that five-star hotels in Lebanon have had so far. The research problem can then be stated as follows: to gain a better understanding of CRM in Five Star Hotels in Lebanon.

1.2 OUTLINE OF THE THESIS

This research investigates the Business Value of the CRM approach in 5 Stars Hotels in Lebanon. The CRM Business Value refers to the impact of the CRM on the organizational performance and implies the assessment of this approach.

This thesis consists of six sections, excluding this introductory section.

Section 1 provides a review on the customer relationship management approach literature. Given the multidisciplinary nature of customer relationship management (CRM) research, it is important to review the literature from the pertinent disciplines that structures this investigation. A fly over the literature enable us to relook at the CRM root.

The concept of customer relationship management is not new; it has always existed in some forms in organizations. Organizations, of all sizes, have used on a continual basis the concept of caring and responding to customers' needs in order to compete, survive and to be differentiated from competitors. It is a fundamental approach to doing business. The goal is to be customer-focused and customer-driven, running all aspects of the business to satisfy the customers by addressing their requirements for products and services and by providing high-quality, responsive customer service. Companies that adopt this approach are called customer-centric, rather than product-centric.

Although the basis of CRM has been around since 1956, it is only within the last decade that CRM has created a significant impact in the business world (Nairn, 2002). Much debate exists within the CRM community as to what CRM means. Based on the literature review, a delineation of the Customer Relationship Management approach in this study is given. Drawing together the different highlights of many definitions (e.g., Gartner Group, 2004; Hobby, 1999; Kincaid, 2003; Parvitiyar and Sheth, 2001), and reflecting the intent of the preceding statement, this research adopts the following CRM perspective: It is an organization-wide ongoing process providing a systemic approach to aligning business processes, technologies, and the customer.

After delineating the CRM Approach in the research, we explore the consequences of the Customer Relationship Management Approach. As every approach based on information technology, CRM has promised a fundamental change as to the way companies manage their customers ensuring high returns on investment and a better performance in all subjected processes. We present the attractiveness of the CRM as well as its ugliness.

Then we define the basics of the CRM approach. To succeed in such an approach, companies have to centralize all information gathered from the different interactions with the customers in a manner which will permit the enterprise a full view of its customers. Information plays a key role in building and maintaining customer relationships (Jayachandran et al., 2005). We present a review of fundamentals frameworks that define the

CRM approach and explore the adopted framework, the Peppers and Rogers's (2004) IDIC and which reflects the intent of Jayachandran et al. (2005). This approach is an incremental process of interrelated dimensions designed to systemize the capture and use of customer information for the purpose of better managing customer relationships. This approach is defined into its two principal activities: the analysis, and action. The analysis stage in the CRM approach represents the analytical CRM. This area concerns the back of the office tasks. It concerns the stages dedicated to the treatment of the information, from the data collection, till the sharing of information and knowledge. While the action oriented tasks make up the operational CRM. It involves the communication with the customer. Interacting or staying relational with the customer and using the knowledge to customize the service are the main tasks of the action CRM.

Then, we exhibit the role of Information and Communication Technologies in the CRM approach. We explore the three distinct areas of CRM information and communication technologies: collaborative CRM, operational CRM and analytical CRM (Greenberg, 2004).

The first section is concluded by a brief explanation of the hostelry customer relationship management. In this part, we present the benefits of using a CRM approach in hotels and give details on its role in the guest cycle. The customer relationship management approach accompanies all guests' interactions, and that means during pre-arrival, arrival, stay/occupancy, and departure phases (Kasavana and Brooks, 2005). To conclude this part, concerning the Hostelry CRM, we enumerate some of the CRM tools available for hotels.

Section 2 concerns the business value theoretical and conceptual foundations of the research and is related to the business value of information systems. The IT business value refers to "the organizational performance impacts of information technology at both the intermediate process level and the organization-wide level, and comprising both efficiency impacts and competitive impacts" (Melville et al., 2004, p.287). Alongside the business value of IT, we cannot avoid the issues surrounding the IT performance and the accumulated problems relating to its performance and to its evaluation. As the objective of this section is to answer the development of a conceptual framework that defines the Information Systems Business Value, we will be exploring the IS/IT productivity paradox, the different IS/IT Business Value frameworks, and the different techniques for evaluating the IS/IT.

The first part of this section considers the existence of a productivity paradox concerning the IS/IT. In fact, while organizations have increased investments in IS/IT in order to improve organizational performance, findings from earlier IS/IT productivity studies have been inconclusive despite the fact that several recent firm-level empirical studies have found a positive relationship between IT/IS investments and organizational performance. Some research found a positive relationship between IS/IT and organizational performance while other considers that IS/IT investments are a waste. The studies that attempt to establish a link between IS/IT and business performance have used two approaches. The first is to prove a direct link, while the other is to prove an indirect link. Yet, both approaches have yielded into unconvincing results. But the continuously increasing investment in IS/IT by firms have calls for better theories and improved research approaches in assessing the business value of IT.

Recognizing the measurement and modeling problems cited in the IT productivity part, we present alternative models that link IS/IT investment to organizational performance. The conclusion that we can learn from exploring the different models of IS/IT Business Value is that the IT artifact should be considered as an organized resources of material, software, personal, data, procedures to acquire, treat, stock, communicate information in organizations (Reix, 2000). The second concept to consider is the intermediate impact the IS/IT can have before impacting the organization. Another concept is that evaluating the business value of IS/IT is the outcome of interest. There are numerous metrics in measuring the IT productivity and that not all of them can capture the full impact of IS/IT (Sigala, 2003). After identifying numerous frameworks for assessing the business value of IS/IT, we will address the different IS/IT evaluation techniques.

In the information systems field, many studies show difficulties in establishing the business value of IT (Grindley, 1995; Willcocks and Lester, 1996; Graeser et al., 1998). They link the difficulties to indifferent evaluation practice, lack of understanding of possible methods, or how to measure performance. The numerous existent methods and techniques of IS/IT appraisal highlight the difficulty of the task.

The conclusion we can keep in mind is that a company has a wide range of methods and approaches to choose from for the IS business value appraisal. Different evaluation and valuation methodologies reveal different aspects of value and fit a particular situation, thus

there is no "one best method" suitable for all information systems evaluation (Hirschheim and Simthson, 1999). Even though, the wide range of evaluation techniques, Silvius (2006) state that we are still far away from a simple and easy-to-understand calculation method unveiling the complete and true value of any investment.

Section 2 is concluded with a synthesized IT/IS Evaluation Approach Model which permits to justify our problematical inquiry positioning.

The findings explored in section 2 reveal that IS/IT cannot yield to organizational performance, rather it needs the management of success factors to beneficially explore the functionality of the systems. Thus, and before developing the research model based on the synthesized IT/IS evaluation approach model, we will delineate the CRM Prerequisites.

Section 3 answers the objectives of defining the CRM prerequisites and developing the testable research model and hypotheses. While a large body of work identifying and describing critical success factors for information systems in general exists, King and Burgess (2008, p. 430) reveal that "a small emerging literature on CRM CSFs". Based on the literature review concerning the critical success factors of the CRM Approach, we can say that introducing a CRM Approach is similar to introducing an Information System. The success is dependent on organizational, people and technological factors. After reviewing the different factors considered as essential to the CRM Approach, we defined the factors taken into account in our research. Three groups of variables construct the prerequisite for the CRM Approach: Organizational, Orientation, and Technological factors. Organizational factors are the resources that characterize the top management support as well as the organizational system which is set. Orientation factors refer to the organization's culture and are related to the behaviors. It is constructed by the customer orientation, the competitor orientation, and the inter-functional coordination. The technological factors refer to the End-User system satisfaction and to the Information Systems Department Support.

Then consistent with the section 1 in defining the CRM activity, we identify three variables to refer to the CRM: The Collaborative CRM, the Analytical, and the Operational CRM.

Section 3 wraps up all previous parts and presents the research model which is derived from the conceptual model. Drawing from the CRM specific literature and in accordance with

the IS/IT business value frameworks, and the IS/IT business value appraisal, the CRM approach is described as a process-oriented approach with critical factors that were judged to be most relevant and are mostly supported by prior research. A set of research hypotheses is proposed to describe the Business Value of the CRM Approach in Hotels. Those hypotheses are classified into two parts consistent with the research model and the previous sections. The first part defines the Critical Success Factors of the CRM Approach, and refers to hypotheses that link the different variables of the CRM Approach. The second part of the research model investigates the impact of the CRM Approach on the organizational performance. Hypotheses related to this part investigate the relationship between variables of the CRM Approach and the organizational performance.

Section 4 describes the various aspects of the research design used in the study. First a discussion is provided with regard to the choice of research pattern. As mentioned before, the questions driving this research are of a contemporary nature and require study in a systemic approach that considers the organization as a system which can be divided into many sub-systems. And for that purpose, the positivist methods are the most adequate. The positivist paradigm forms the basis of scientific tradition and, even though not limited to, underlies most quantitative and experimental research methods (Deshpandé, 1983; Gummersson, 2003; Hirschman, 1986). Therefore the quantitative method will be used in the hypothetico-deductive model of the research.

In order to investigate our research inquiry, we have done an exploratory phase. During this phase, we have conducted interviews with 4 CRM Managers in different 5 Star Hotels in Lebanon. 2 were a Front Office managers, 1 a sales and the last 1 a marketing manager. The interviews did not add emerging variables specific to the field of research, rather they supported and maintained the factors that were identified according to the literature.

After this phase, we have constructed the research instrument which is a survey that was posted online and that the link was sent by email to the respondents. The field consists of 24 five-stars hotels based on the syndicate of hotel owners in Lebanon. Many reasons are behind our choice of the research field (5-star hotels). The first and essential reason is that this kind of hotels shows an interest in CRM Systems, continuously tries to enhance their CRM, and is capable of investing in Hotel Systems to enhance the CRM Approach.

Based on the ministry of tourism and the syndicate of hotel owners in Lebanon, 24 five-star hotels are operative. 12 hotels are part of a hotel chain, and the other 12 are independently managed where 2 of them belong to a hotel alliance. 3 hotels were not included in our research since 2 of them refused to participate and the 3rd hotel was eliminated because of renovation works.

In addressing our research inquiry, we have contacted the persons in charge of the CRM Approach in the hotel. These persons are three: the Sales manager, the marketing manager, and the front-office manager. That means that the final sample is 63 CRM respondents (21 hotels and 3 persons by hotel). At the end of the data collection phase, 43 respondents have answered the online survey, but only 39 cases were analyzable. This high participation rate is attributed to our professional relations with the respondents and the many contacts we had.

Section 4 provides also a descriptive analysis concerning the final sample and its characteristics. The analysis shows the ICT availability in the hotels, the ICT use in hotels depending on the functions (Sales, Marketing, Service, Analysis, and data integration and support).

Additionally to the data gathering techniques, section 4 presents the research instrument which is, as mentioned before, a survey. We have constructed the research instrument which operationalise the research constructs. The final questionnaire is composed by 139 questions. The section also shows the phase of pre-testing the questionnaire which is intended to avoid unfairness linked to the formulation of the questions, others associated with parts' order, and other biases related to the understanding of the questions (Evrard et al., 2003). The questionnaire was pretested among different persons in different area of expertise. The final questionnaire is presented in appendix A as well as the letter sent to the survey respondents.

Section 4 concludes with the procedures adopted for the data analyses and the hypotheses testing. We present the instrument validity tests (content validity, construct validity, reliability) and the hypothesis tests (correlation, simple regression, multiple regression analysis).

Section 5 presents the data analysis and results. First, we present the results of validity and reliability analyses of the measures used to capture the various constructs. The convergent validity enables to verify if the scale of measure, used to assess the construct, assesses the measured construct. After we have presented the convergent validity of each construct, we examined the discriminant validity. This phase enables us to examine the degree to which constructs are not similar among each other and that each construct allows to measure different phenomenon (Evrard et al., 1993). After both validity tests, we present the final measurement model table in which all constructs are presented with the retained items and showing their reliability. After proceeding with research descriptive analyses, section 5 presents the research explicative analyses. The research explicative analyses are aimed to verify our research hypotheses concerning the Business Value of the CRM and its' critical success factors. This section was divided into two sections in accordance with the research model. The first section concerns with the critical success factors part, and the second section concerns the impact of the CRM Approach on the organizational performance. At the end of each section, the research model part is sketched showing the results. Section 5 is concluded with the representation of the general research model and the hypothesis results.

The section "data analysis and results" is extended with a supplementary part; appendix B. In this appendix, we investigated in depth the critical success factors of the CRM Approach. The results of this appendix are to include in the research results and findings in order to present a holistic view of the CRM Approach Business Value Model.

Section 6 discusses the findings, the discussions, the implications, and the conclusions of the study. The findings and discussions are presented in consistence with the research model from the main five constructs: Organizational Critical Success Factors, Orientation Critical Success Factors, Technological Critical Success Factors, CRM activity, and Perceived Performance. The contributions of the study are discussed from three perspectives: theoretical, methodological, and managerial. The limitations of the study and directions for further research are also discussed. The section concludes with a general conclusion of the research.

SECTION I UNDERSTANDING THE CUSTOMER RELATIONSHIP MANAGEMENT

Given the multidisciplinary nature of customer relationship management (CRM) research, it is important to review the literature from the pertinent disciplines that structures this investigation. This chapter reviews the major streams of literature in the information technology (IT) and marketing domains which relate to CRM.

In today's business world, there are different marketing approaches or strategies that fit to different circumstances and different types of businesses. Marketing strategy has a range of different approaches where the two bounds are transaction marketing and relationship marketing. The later focuses on building relationships with customers while the main point of the transaction marketing is to create a single transaction with the customer.

Companies producing consumer packed goods will probably use a transaction marketing approach while service companies, such hotels, tend to create close customer contacts and focus on customer interactions by applying relationship marketing.

2 BEHIND THE CRM

The concept of customer relationship management is not new; it has always existed in some forms in organizations. Organizations, of all sizes, have used on a continual basis the concept of caring and responding to customers' needs in order to compete, survive and to be differentiated from competitors. It is a fundamental approach to doing business. The goal is to be customer-focused and customer-driven, running all aspects of the business to satisfy the customers by addressing their requirements for products and services and by providing high-quality, responsive customer service. Companies that adopt this approach are called customer-centric, rather that product-centric.

2.1 CUSTOMERS

The new environment of business, such as tough competition and less customers' loyalty, unveiled the importance of keeping the existing customers loyal. During the development of a relationship with a customer, the cost to market and sell declines, and the potential for gross margin improvement increases as the relationship endures and progress, and thus it was demonstrated that that keeping existing customers is more profitable than attracting new ones (Brown, 2000; Reichheld and Sasser, 1990; Rosenberg and Czepiel, 1993). Christopher et al. (2001) demonstrated that existing customers are easier to sell to, and are frequently more profitable.

This has also led to the increased awareness of companies about the importance of serving the customer needs with a higher level of quality in a convenient way to both parties (Anton, 1996). The loyal customers cherish the relationships with the company as value for money and don't just focus on the price. They can also act as advocates for the company helping attracting new customers.

Recognition has a positive impact on customer retention, and an increase in retention rate causes an enhancement in the customer lifetime. A 5% increase in customer retention results in a 25% to 100% increase in company profits (Reichheld and Sasser, 1990). Longevity creates value (Brown, 2000). Such reports have lead managers to recognize and move their focus on customer relationships as a key to gain profits (Pease, 2001). The awareness of customer relationships' importance led to the new marketing paradigm, the customer-centric marketing, or relational marketing, or relationship marketing, in which the emphasis is on prolonging the customer value.

2.1.1 CUSTOMER VALUE

Real customer relationships, those that result in the customer feeling a genuine sense of loyalty to the firm, are predicated on a series of satisfying experiences with the company. It takes a process of understanding, creating and delivering value to targeted business markets and customers. Relationships are not developed quickly; it takes a long process of knowing customers and satisfying them. By combining an understanding of customer purchasing drivers and customer knowledge, companies can tailor their offerings to maximize the overall value of their customer portfolio (Thompson et al., 2000). Until the customer senses some

attachment to the company, then an organization can say having a relationship with the customer. It is when the customer feels an ongoing creation of value that this sense of attachment will be felt. Delivering superior customer value has become the ongoing concern for companies, in building and sustaining competitive advantage, driving them to target value creation by the mean of customer relationship management (Chi et al., 2004; Knox et al., 2003).

To be able to create and deliver customer value and to know where resources and capabilities have the greatest potential, a complete understanding of customer requirements, preferences, and purchasing processes have become a prerequisite (Anderson and Narus, 2003). By definition, a customer's value to an enterprise is a future-oriented variable. It is a quantity that can be determined only from the customer's actual behavior in the future. Christopher et al. (2001) define customer values as "the ratio of perceived benefits to the perceived sacrifice that in involved". The actual value of a customer is equivalent to a quantity that is called the customer lifetime value (LTV). Every customer of the enterprise will be responsible for some series of events in the future, and each of which will have an impact on the enterprise (Peppers and Rogers, 2004). The value creation process consists of three key elements: the value the customer receives; the value the organization receives; and maximizing the lifetime value of desirable customer segments.

The customer value results from the different analysis a company performs based on the data stored into the organization. Customers are not always profitable, and thus will have a low lifetime value. And based on that value, a company decides whether the customer is worth the effort of continuing the relationship with (Zikmund, 2003).

Apart from the value CRM creates for the customer, the CRM approach can also increase customer satisfaction and long-term success through longer and closer relationships consequently increasing operational benefits and boosting company's performance (Butler, 2000).

2.1.2 CUSTOMER SATISFACTION, RETENTION, AND LOYALTY

Customer satisfaction has been regarded as a fundamental determinant of long-term consumer behavior (Oliver, 1999; Yi, 1990) and is also linked to purchase behavior (Anderson and Sullivan, 1993; Mittal and Kamakura, 2001). Satisfaction is a feeling of

pleasure resulting from comparing products or services in relation to the expectations (Kotler, 2000). In trying to conceptualize the chain of effects from satisfaction to profits, Anderson and Mittal (2000) like many others (e.g., Heskett et al., 1994; Rust et al., 1995) have proposed models that link satisfaction to retention, and retention to profits. And according to Reichheld and Sasser (1990), the foundation of customer relationships is the positive cause and effect relationships between (1) antecedents of customer satisfaction, (2) customer satisfaction, (3) customer loyalty, and (4) customer profitability.

Much of the research on customer satisfaction, retention or loyalty has identified customer retention as a key driver of firm profitability (Reichheld, 1996; Reichheld and Kenny, 1991; Reichheld et al., 2000).

The concept of customer satisfaction has for years formed the cornerstone of the marketing concept (Drucker, 1954; Levitt, 1960). However during the last decade, customer satisfaction has received a lot more attention than earlier. Reasons can be linked to the increase attention concerning total quality management (Garvin, 1991; Hayes, 1998) and the implementation of the national customer satisfaction barometers (Fornell, 1992; Johnson et al., 2006).

Lovelock et al. (1999) said, in business context, loyalty is used to describe the willingness of a customer to continue patronizing a firm's products and services over a long period of time and on a repeated and preferably exclusive basis, and voluntarily recommending the firm's to others. This loyalty is clearly affected by satisfaction (Chiou et al., 2002; Cronin et al., 2000; Cronin and Taylor, 1992). According to Kotler (2000), the most important consideration to attain high customer loyalty is for firms to deliver high customer value, because of the following highly satisfied customer characteristics:

- Stays loyal longer,
- Buys more as the company introduces new products and upgrades existing one,
- Talks favorably about the company and its products and services,
- Pay less attention to competing brands and advertising, and is less price sensitive,
- Costs less to serve than new customers because transactions are routinised.

Hoffman and Bateson (2002) stressed the need to put in place effective tactics for satisfying customers, retaining them, and subsequently making them loyal.

Customer loyalty and customer satisfaction continue to be an important objective for managers around the world. Customer relationship management initiatives are allowing organizations to achieve high levels of customer satisfaction and loyalty compared to their competition (Campbell, 2003).

2.1.3 THE CUSTOMER LIFE CYCLE

Relationships are dynamic by nature as the participants' demands evolve over time. The development can be described through the customer life cycle (Jain and Singh, 2002; Wheaton, 2008). During their lifetime, customers traverse specific phases where each phase is characterized by specific properties of the customer relation to its environment. It is similar to the product life cycle, but with the customer-centric orientation concentration rather than the product-centric orientation, the customer life cycle has taken on a central role. The customer life cycle defines the entire time period the customer remains with the firm. It describes the evolution of the strength of a customer relationship over time, and is represented in different phases: (1) customer acquisition, (2) customer development phase, and (3) customer retention phase (Bruhn, 2001).

During customer acquisition, the relationship is initiated. This relationship is weak, as the interaction between the buyer and seller is described to be weak. It is a test phase. Then, customer relationships develop and the bond becomes stronger with every interaction and every purchase. The third phase is where a tie links the customer to the company and where the company focuses on retaining the customer.

2.2 RELATIONSHIP

Peter Drucker (1954) states "the only effective definition of a business aim is to create customers". Enterprise strives to get a customer, keep that customer, and grow the value of the customer to the enterprise. The exchange can be a simple one-time single transaction or an ongoing, long-term business and social interactions (Grönroos, 1994, 1995). It is more helpful to recognize that relationships occur along a transactional-relational continuum. Three basic relationship types exist along this continuum: market exchanges, functional relationships, and strategic partnership (McCubbrey, 2009). Table 1 summarizes the characteristics of each relationship type.

TABLE 1 TYPES OF RELATIONSHIPS

Type of Relationship			
Characteristics of the relationship	**Market Exchange**	**Functional Relationship**	**Strategic Partnerships**
Time Horizon	Short term	Long term	Long term
Concern for other party	Low	Medium	High
Trust	Low	High	High
Investment in relationship	Low/Medium	High	High
Nature of relationship	Conflict, bargaining	Cooperation	Collaboration
Potential benefits	Low	Medium	High

Market exchanges are one-time transactions that occur without much thought of future interaction. It is transactional marketing where neither the company nor the customer finds an interest in establishing or investing in a relationship and only lasts for the exchange's moment. When it comes to customers, businesses are shifting their focus from product transactions (transactional marketing) to relationships. Functional relationships reflect the middle type of transactions where a long-term relationship is created. It does create a climate for cooperation, with open and honest communication. Functional relationships can be appropriate when a high level of personal trust is required to manage the relationship (Johnston and Marshall, 2003). The relationship between a customer and the enterprise becomes mutually beneficial, as customers give information in return for personalized service that meets their needs. The more the customer teaches the company and the more he invests in the relationship, the better the company can provide exactly what the customer wants (Peppers and Rogers, 2004). Subsequently, a strategic partnership begins to be formed where the partners (company and customer) make significant investments to improve profitability and jointly achieve strategic objectives. This interaction forms an intimate collaborative dialogue between the enterprise and the customer that grows smarter and smarter with each successive interaction. The more the customer teaches the company, the better the company can provide exactly what the customer wants and the more likely choose to continue dealing with the enterprise rather than spend the extra time and effort required to establish a similar relationship elsewhere (Pine et al., 1995).

"Not all customers are equal" (Peppers and Rogers, 2004, p.21), and thus strategic partnership cannot be created with every customer. Enterprises need to decide on which

customers they want to devote time and invest in order to create a strategic partnership, a "*learning relationship*" (Pine et al., 1995).

In summary, relationships are complex exchanges between two parties and a relationship may exist anywhere along a continuum from purely transactional to fully relational. It is important to recognize that customers play an important and valued role in the initiation, development and maintenance of relationships. Some marketers consider a relationship to begin when customer information is collected and used in a database, or when any form of exchange of goods or service takes place. Grönroos (1990, p.6) took a step further in describing a relationship: "(1) establishing a relationship involves giving promises, (2) maintaining a relationship is based on fulfillment of promises, and finally (3) enhancing a relationship means that a new set of promises are given with the fulfillment of earlier promises as a prerequisite".

2.2.1 RELATIONSHIP PROCESS

Not all exchanges can be characterized as relationships. Some are purely transactional where a sustained relationship between the two parties of the exchange is discrete. The exchange is focused on the act of sales of products. The seller and the buyer are not interested in forming a relationship, and thus the transaction can be described as a discrete transaction. When the seller and the buyer, both, have an interest in building a relationship through the transaction, this transaction is said to be a relational or collaborative exchange.

Relational exchanges become apparent over time with each transaction acting as a link in a chain having a history and an anticipated future. It is where the customer is visible as a customer, not just a series of discrete, independent transactions. Dwyer et al. (1987) established five general phases through which relationships evolve:

- Awareness: the first phase of the relationship process, in which there is no interaction. Each party recognizes the existence and the potential of the other.
- Exploration: it is a testing phase. The parties communicate their wants, issues and priorities. This phase is an exploratory period with an attempt to determine goal compatibility, integrity and performance capabilities of the other. In the evidence of commitment to achieving joint goals, the relationship is more likely to advance.

- Expansion: after showing commitment in the exploratory phase, this phase is characterized by an increase in the derived relationship benefits and by an increase in interdependence and risk taking. In this phase, participants are continually testing and reevaluating perceptions developed till now.
- Commitment: in this phase, participants have achieved a level of value and satisfaction that enables them to comfortably make a commitment to the relationship. The participants do not focus on alternative relationships and the relations are expected to endure. In this phase, both parties provide high level of inputs to the relationship. There is a consistency in the inputs which allows future outcomes.
- Dissolution: this stage is not the succession of the commitment rather it can occur at any stage in the development process. The dissolution or disengagement arises when a participant evaluates the value of the relationship and determines that the cost of continuation outweighs the benefits.

Throughout the relationship process, the participants engage in a two-way interchange. The customers and the company share information through continuous interaction that serves as a loop of feedback, allowing each party to learn about the other. This information sharing will positively act to strengthen the relationship and the quality improvement of the exchange (Hsu et al., 2008). Over time, the nature of the deliverable becomes less clear, necessitating deeper relationships. In such uncertain environments, where needs, preferences, responses and responsiveness are fuzzy, cooperation and trust are required to meet the needs of both parties (Peppers and Rogers, 2004).

As evidenced by the abundance of literature on the many benefits in the formation of relationships, we will present in the following section the major outcomes of successful relationships.

2.2.2 RELATIONSHIP OUTCOMES

The whole point of a relationship is to keep, attract and grow a customer (Peppers and Rogers, 2004). Developing long-term relationships are found on satisfaction and loyalty. In a market-oriented business, such as service companies, one is concerned with the satisfaction of both the customer and the company. The firm is satisfied when exchanges result in

profitability. The customers are in general believed to be satisfied when the offered products meet their needs, desires and requests.

The concentration on building beneficial relations with customers is not a new approach in the field of business. In order to keep, expand and acquire repeat and referral business companies are in need to satisfy customers (Barsky, 1992). The basis of expanding a relationship is a solid foundation of customer satisfaction and loyalty. Cronin and Taylor (1992) found that customer satisfaction has a significant effect on purchase intentions in service sectors; while findings by Getty and Thompson (1994), in the lodging sector, suggest that customer' intentions to recommend the lodging to prospective customers are a function of their satisfaction.

2.3 RELATIONSHIP MARKETING

To better understand the customer relationship management approach of companies, we should go back to the origins of such an approach in companies. Market relationships have been always acknowledged as a starting point for all businesses. In fact, Bagozzi (1978) was among the first to state that the exchange relationships are the essence of marketing. The evolution of relationship marketing began with the works of Arndt (1979), Bagozzi (1974; 1978), Day and Wensley (1988), Berry (1983), and Levitt (1983). Researchers have been working on the concept of relationships at the core of marketing; however the term "relationship marketing" was first introduced by Berry (1983). Berry (1983, p.25) defines relationship marketing as "attracting, maintaining, and enhancing customer relationships." Then, in 1994, Morgan and Hunt (1994, p.22) suggested a definition for relationship marketing stating that it is all marketing activities directed toward establishing, developing, and maintaining successful relational exchanges. Relationships can be complex, it is not as some marketers consider that a relationship begin when a customer information is collected and used in a database, or when any form of exchange of goods or service takes place. Relationships are considered as a point along a transactional-relational continuum between a simple one-time single transaction and a long-term business and social interactions (Grönroos, 1994). Grönroos (1990) went to describe from a service provider's perspective the relationships. "Establishing a relationship involves giving promises; maintaining a relationship is based on fulfillment of promises; and finally, enhancing a relationship means that a new set of promises is given with the fulfillment of earlier promises as a prerequisite".

And in 2000, Grönroos underlined the lack of customer perspective in the relational marketing definitions. He then addressed this issue by presenting a customer oriented definition. Grönroos (2000, p.33) stated "a relationship is developed when a customer perceives that a mutual way of thinking exists between customer and supplier or service provider."

Relational Marketing is considered as the new marketing paradigm by some academics (Grönroos, 1996, 1997; Gummesson, 1994; Vargo and Lusch, 2004). The added value of relationship marketing to both parties is the opportunity for the supplier to understand more customers' requirements thereby gaining the ability to customize and tailor services to the very specifics of customers. The benefits to the firm accrue in the form of protecting the customer base, by creating product differentiation and barriers to switching, and improving profits (Dwyer et al., 1987; Low, 1996; Reichheld and Sasser, 1990).

One of the roles of relationship marketing is to establish, maintain and develop relationships with customers. When investing in a strong relationship, both parties acquire substantial benefits (Ravald and Grönroos, 1996). The strength of relationships has been investigated and measured in a variety of ways (Hausman, 2001; Morgan and Hunt, 1994; Odekerken-Schroder et al., 2003). There is no general consensus on which dimensions define relationship strength, but Dorsch et al. (1998, p.130) emphasize the importance of trust, satisfaction and commitment. Morgan and Hunt (1994) considered trust, commitment and communications as the primary factors to the development and maintenance of business relationships.

Over the years, the evolution and definition of relational marketing has been somewhat elaborated (Bitner, 1995). More recently, a number of authors propose that an emphasis on the 4P marketing mix is no longer the dominant marketing logic and the relational marketing may be a more appropriate paradigm for marketing (Dwyer et al., 1987; Grönroos, 1989, 1990; Gummesson, 1994; Kotler, 1992; Vargo and Lusch, 2004). The primary impetus behind the concept of relationship marketing is to foster a long-term relationship and thereby create repeat purchases (Yau et al., 2000). With a strengthened focus upon relational marketing, the CRM linkage becomes clearer. Ryals and Knox (2001) cite that "CRM provides management with the opportunity to implement relationship marketing on a company wide basis". It guides companies to implement a more holistic view for the

customer. As Zablah et al. (2004) state "relationship marketing is often cited as the philosophical basis of CRM".

2.4 RELATIONSHIP BETWEEN IT AND MARKETING

The relationship between information technology (IT) and marketing exists since mass marketing evolved in the early 1900s. Except that the significant association between IT and marketing can be traced back to the mid-1960s, when massive data-processing capabilities appeared and their impact on business practice was first considered (Li et al., 2001). Figure 1 presents a brief overview of the IT evolution with respect to the marketing's. Considered as purely a business support function in the early days, IT has evolved through simple routine enablers and data processing applications into a strategic contributor to contemporary business (O'Brien, 2004).

FIGURE 1 MARKETING EVOLUTION WITH CHARACTERISTICS AND TECHNOLOGY ATTRIBUTES

Mass Marketing	Target Marketing	Customer Marketing	One-to-One Marketing
Characteristics	***Characteristics***	***Characteristics***	***Characteristics***
• *Market share* • *Individual sales* • *Limited segmentation* • *Huge campaigns* • *Not cost-effective* • *Single treatments* • *Focus on transactions* • *# of relationships*	• *Segmented campaigns* • *Small mass marketing* • *Focus on products*	• *Customer share* • *Life time value* • *Model distribution* • *On-going refinement* • *Multiple treatments* • *Focus on customer* • *Breadth of relationships* • *Event-driven*	• *Interactive segmentation* • *Real-time matching* • *Interactive TV* • *Active web pages* • *Customer interaction* • *One-to-one relationships* • *Real-time marketing* • *Prediction-driven*
Technology	***Technology***	***Technology***	***Technology***
• *In-house* • *Outsourced mailings* • *Flat files/ Mailing lists* • *Some packaged App.'s*	• *Individual databases(s)* • *Application for projects* • *Proprietary solutions* • *Limited analysis*	• *Data warehouse* • *Integrated data & App.'s* • *Customer knowledge* • *Modeling, analysis & Refinement process*	• *Integrated data warehouse* • *Internet enabled* • *Many touch points integrated* • *Cross organization process* • *Management by interaction*

Adapted from Johnston and Marshall, 2003

Kotler (1966; 1970) was among the first to see the benefits of IT use in marketing. The many advantages of the use of IT in the field of marketing include real-time information management about customer and competitor and enhanced analytical capabilities and decisions support (Li et al., 2001). Marketing's need to provide comprehensive support for senior management decision-making provided drivers for the extensive use of IT such as executive information systems (EIS) and group support systems (GSS) (Easton et al., 2003;

Fjermestad and Hiltz, 2000). Marketing has continued to take advantage of IT capabilities and practitioners began using supply chain management (SCM) applications to help solve problems related to supply and distribution (Turban et al., 2005). Expert systems (ES) were used to help analyze and supplement customer service (Boone and Roehm, 2002; Li et al., 2002). Data warehouse and data mining are considered to be the critical components of the new marketing paradigm in intelligently extracting stored information for effective use (Greenberg, 2002; Nairn, 2002).

3 CUSTOMER RELATIONSHIP MANAGEMENT

Although the basis of CRM has been around since 1956, it is only within the last decade that CRM has created a significant impact in the business world (Nairn, 2002). Much debate exists within the CRM community as to what CRM means. The first step in discussing the nature of CRM is to clearly present a definition. CRM originally stood for Customer Relationship Marketing, and in about 1998, it changed to Customer Relationship Management (Nairn, 2002). An agreement is found for the CRM acronym, whereas according to Paulissen et al. (2007), there is no consensus among researchers to identify CRM. Practitioners and academicians are not able to identify a common conceptualization of the CRM (Bull, 2003; Fairhurst, 2001; McKim, 2002; West, 2001, Zablah et al., 2004). The level of confusion within the concerned regarding the CRM definition is widely expressed. It could be portrayed as a continuum having the two borders: a narrowly and tactically definition and a broadly and strategically definition (Payne and Frow, 2005).

In the next section, we will initially present some of the more common CRM definitions resulting from an examination of both academic and popular industry journal literature. We then present our retained CRM approach.

3.1 CRM DEFINITION

Over the past decade, there has been an explosion of interest in CRM by both researchers and practitioners especially in the field of Information Systems and Marketing. CRM has been described from a number of different perspectives including functional, technical and managerial aspects (Doherty and Lockett, 2007; Ngai, 2009; Wright et al., 2002). From an IT perspective, CRM technological and implementation aspects appear to be

highlighted (e.g., Chalmeta, 2006; Cooper et al., 2000; Romano and Fjermestad, 2001). Management researchers view CRM as an important business strategy and philosophy (e.g. Chang et al., 2002; Hasan, 2003; Kracklauer et al., 2001; Tan et al., 2002); while marketing academics view the CRM as a concept that adds value to the meaning of customer orientation and helps to operationalise marketing orientation and provides marketing value (e.g., Aspinall et al., 2001; Reinartz and Kumar, 2003; Srivastava et al., 1999).

Numerous definitions of CRM have been proposed by scholars and practitioners and yet a common conceptualization of the CRM is still lacking (Bull, 2003; Fairhurst, 2001; McKim, 2002; West, 2001). Rigby et al. (2002) state that most executives cannot readily define CRM, and the reason for the difficulty is that CRM means different things to them depending on their academic backgrounds and on their understanding for CRM.

As the term of customer relationship management has its roots in the information technology community, it is normal to find that early definitions of CRM often describe it as technology-based customer solutions. Another common definition to CRM is to characterize it as "an approach or business strategy which provides seamless integration of every area of business that touches the customer" (Sathish et al., 2002, p.545). A number of studies take more holistic and integrative approach to CRM, attempting to define it through its relationship with technology and as a business strategy (Bose, 2002; Buttle, 2004; Goodhue et al., 2002). In the table below, we list some of the more common CRM definitions found in the IS and marketing literature.

TABLE 2 CRM DEFINITION AND/OR CONCEPTUALIZATION

Author(s)	CRM definition and/or conceptualization
Simon and Sullivan, 1993	CRM uses technology-enhanced customer interaction in order to shape appropriate marketing offers.
Glazer, 1997	CRM attempts to provide a strategic bridge between information technology and marketing strategies aimed at building long-term relationships and profitability. This requires "information-intensive strategies".
Hobby, 1999, p.28	CRM is a management approach that enables organizations to identify, attract and increase retention of profitable customers by managing relationships with them.
Peppers et al., 1999	CRM can be viewed as an application of one-to-one marketing and relationship marketing, responding to an individual customer on the basis of what the customer says and what else is known about that customer.
Srivastava et al., 1999	CRM systems: Information and Communication Technology (ICT) supported processes used to identify customers, create customer knowledge, build customer relationships, and shape customers' perceptions of the organization

	and its products and services.
Gosney and Boehm, 2000	CRM includes numerous aspects, but the basic theme is for the company to become more customer-centric. Methods are primarily Web-based tools and Internet presence.
Swift, 2001	CRM is an enterprise approach to understanding and influencing customer behavior through meaningful communication to improve customer acquisition, customer retention, customer loyalty, and customer profitability.
Parvatiyar and Sheth, 2001	CRM is a comprehensive strategy and process of acquiring, retaining, and partnering with selective customers to create superior value for the company and the customer.
Shoemaker, 2001	CRM is a technology used to blend sales, marketing, and service information systems to build partnerships with customers.
Stone and Woodcock, 2001, p. 17	CRM is a term for methodologies, technologies, and e-commerce capabilities used by companies to manage customer relationships.
Anderson and Kerr, 2002, p.2	CRM today is about using information technology systems to capture and track your customers' needs.
Bose, 2002	CRM is an integration of technologies and business processes that are adopted to satisfy the needs of a customer during any given interaction
Day and Van den Bulte, 2002	CRM is a cross-functional process for achieving a continuing dialogue with customers, across all their contact and access points, with personalized treatment of the most valuable customers, to increase customer retention and the effectiveness of marketing initiatives.
Greenberg, 2002, p.17	CRM is a comprehensive set of processes and technologies for managing the relationships with potential and current customers and business partners across marketing, sales and service regardless of the communication channel. The goal of CRM is to optimize customer and partner satisfaction, revenue, and business efficiency by building the strongest possible relationships at an organizational level.
Plakoyiannaki and Tzokas, 2002	CRM is an IT enhanced value process, which identifies, develops, integrates and focuses the various competencies of the firm to the voice of the customers in order to deliver long-term superior customer value, at a profit, to well identified existing and potential customer segments.
Kincaid, 2003	CRM is the strategic use of information, processes, technology, and people to manage the customer's relationship with the company across the whole customer life cycle.
Rajola, 2003, p.17	CRM may be regarded as a set of technological and organizational mechanisms intended to buffer market instability through better knowledge of environmental variables, particularly market variables, in order to anticipate customers' needs, rendering production activities more stable and programmable.
Chen and Ching, 2004	CRM is a process that utilizes technology as an enabler to capture, analyze and disseminate current and prospective customer data to identify customer needs more precisely and develop insightful relationships.
Ko et al., 2008	CRM is the integrated customer management strategy of a firm to efficiently manage customers by providing customized goods and services and maximizing customers' lifetime values.
Zablah et al., 2004	CRM is an ongoing process that involves the development and leveraging of market intelligence for the purpose of building and maintaining a profit-maximizing portfolio of customer relationships.
Payne and Frow, 2005	CRM is a strategic approach that is concerned with creating improved shareholder value through the development of appropriate relationships with key customers and customers segments. CRM unites the potential of relationship

	marketing strategies and IT to create profitable, long-term relationships with customers and other key stakeholders. CRM provides enhanced opportunities to use data and information to both understand customers and co-create value with them. This requires a cross-functional integration of processes, people, operations, and marketing capabilities that is enabled through information, technology, and applications.
Shang and Fen, 2006	A CRM system is a combination of people, processes, and technology that seeks to provide understanding of a company's customer and to support a business strategy to build long-term, profitable relationship with customers.
Gartner Group, 2004	CRM can be segmented into two components: (1) CRM is a business strategy that commits the organization to being driven by the customer (also referred to as becoming 'customer-centric'); (2) CRM technology is used as an enabler to deliver profitable value to customers through the understanding and anticipation of their needs.

Each from the above presented definitions represents a different conceptualization of the CRM. The various definitions prove the extent to which the lack of a widely accepted and appropriate definition of CRM. As mentioned by Payne and Frow (2005), all CRM definitions can be traced on the continuum described previously in the chapter. Trying to follow Payne and Frow's classification, we can easily distinguish the three perspectives defined in their article. (1) CRM is defined as a specific technology solution project (Anderson and Kerr, 2002; Gosney and Boehm, 2000; Shoemaker, 2001; Simon and Sullivan, 1993; Srivastava et al., 1999; Stone and Woodcock, 2001). (2) CRM is defined as an in-between the two borders of the continuum (Bose, 2002; Chen and Ching, 2004; Day and Van den Bulte, 2002; Gartner Group, 2004; Glazer, 1997; Greenberg, 2002; Kincaid, 2003; Parvatiyar and Sheth, 2001; Payne and Frow, 2005; Peppers et al., 1999; Plakoyiannaki and Tzokas, 2002; Rajola, 2003; Shang and Feng Ko, 2006; Zablah et al., 2004. (3) CRM is a holistic approach to managing customer relationships (Hobby, 1999; Ko et al., 2008; Swift, 2001). A number sees CRM from an information technology perspective. To others, CRM is a holistic approach for the enterprise. And some opt to consider CRM as a combination of business processes and technology that aims to manage relationships.

Facing such ambivalence as to CRM's meaning, a detailed analysis of the many CRM definitions of the literature was conducted by Zablah et al. (2004) in an attempt to develop a conceptualization that captures the true meaning of CRM. They have reviewed definitions and descriptions of CRM offered by different authors and authorities, signifying a variety of CRM perspectives. Zablah et al. (2004) found that "CRM has, implicitly or explicitly, been

conceptualized as a process; strategy; philosophy; capability; and/or technological tool". Table 3 describes the five major perspectives.

TABLE 3 DOMINANT PERSPECTIVES ON CRM

Perspective	Description	Representative conceptualization
Technology	Knowledge and interaction management technologies represent the key resources firms need to build long-term, profitable customer relationships	CRM is the technology used to blend sales, marketing, and service information systems to build partnerships with customers (Shoemaker, 2001, p.178)
Process	Buyer-seller relationships develop over time and must evolve to perdure	CRM is concerned with the creation and leveraging of linkages and relationships with external marketplace entities, especially channels and end users (Srivastava et al., 1999, p.169
Capability	Long-term, profitable relationships result only when firms are able to continuously adapt their behavior towards individual customers	CRM means being willing and able to change your behavior toward an individual customer based on what the customer tells you and what else you know about that customers (Peppers et al., 1999, p. 101)
Philosophy	Customer retention (and hence profitability) is best achieved through a focus on relationship building and maintenance	CRM is not a discrete project –it is a business philosophy aimed at achieving customer centricity for the company (Hasan, 2003, p. 16)
Strategy	A customer's lifetime value determines the amount and kinds of resources that a firm invests in a particular relationship	CRM enables companies to invest in the customers that are (potentially) valuable for the company, but also minimizes their investments in non-valuable customers (Verhoef and Donkers, 2001, p. 189)

Adapted from Zablah et al., 2004

Each aspect considered on its own is likely to yield an incomplete picture. Having an incomplete or an inappropriate picture of the CRM can contribute to the failure (Payne and Frow, 2005). And thus, a CRM definition should have the most important aspects, which are: the value of customer, holistic approach, and technology empowerment (Ling and Yen, 2001).

As recognized in the prior paragraphs and as cited by Cooper et al. (2000), we can state that the contemporary view of CRM underlines the importance and the role of the use of information technology to acquire and retain long-term customers; to create a long-term business strategy; to help implement CRM processes; and to increase profit over time.

Drawing together the different highlights of many definitions (e.g., Gartner Group, 2004; Hobby, 1999; Kincaid, 2003; Parvatiyar and Sheth, 2001), and reflecting the intent of

the preceding statement, this research adopts the following CRM perspective: **It is an organization-wide ongoing process providing a systemic approach to aligning business processes, technologies, and the customer.**

This definition emphasizes the importance of continuously identifying and better servicing customers by the facilitation of appropriate organizational processes and by means of information technologies. The key components of this perspective include customer knowledge, long-term relationships, an ongoing customer centric orientation and information technologies. Presented as an appealing way of doing business, the nature of CRM aims to maximize customer value in the long term. It represents an opportunity for firms to achieve a competitive advantage by offering more value to customers (Campbell, 2003). In the following section, we will present key components and the pledged benefits of such an approach.

3.2 THE CRM SUBSEQUENT

The CRM approach has received increased attention during the last decades among academics and practitioners (c.f., Osarenkhoe and Bennani, 2007; Sin et al., 2005; Wilson et al., 2002; Zablah et al., 2004). In fact, CRM continues to be a topic that generates interest, and billions of dollars are being spent by companies all around the world on CRM technology. According to Gartner Group (2008), global spending on CRM technology is expected to increase over the coming years. Paulissen et al. (2007) state that CRM technology expenditures are likely to rise from $11.2 billion till $20.6 billion between 2002 and 2007.

As every approach based on information technology, CRM has promised a fundamental change as to the way companies manage their customers ensuring high returns on investment and a better performance in all subjected processes.

3.2.1 CRM, THE BEAUTY

We should not forget that CRM stands for Customer Relationship Management. Therefore the main concern is the customer. According to Reichheld and Sasser (1990) and Kale (2003), reducing customer defections by 5% can boost profits by 25% to 85%. Pfeifer and Farris (2006) remembered that impressive findings in justifying the increased investments in CRM systems. In explaining the previous statement, we can conclude that a

customer becomes more profitable with time because the initial acquisition cost exceeds gross margin while the retention costs are much lower. When an organization retains the customer, it gets a larger share of the customer wallet at a higher profit increase.

Similarly, the profitability of selling a product to a prospect is 15% while it is 50% to a existing customer. Thus the time, the effort and the costs of selling are much lower for an existing customer. In that approach, Kale (2003) states that the heart of the CRM is the notion of customer lifetime value (CLV; LTV; LCV).

According to Swift (2001), companies can gain many benefits from CRM implementation. The many advantages that a company can have are commonly found in one of the following areas: (1) acquiring customers; (2) cost reduction; (3) higher customer profitability; and (4) increased customer retention and loyalty.

3.2.1.1 ON GOING CUSTOMER CENTRIC ORIENTATION

As the fundamentals purpose of CRM is to establish long-term relationships with the customers, it is essential to emphasize the need for the establishment of an ongoing customer-centric focus capable to achieve long-term relationships (Zablah et al., 2004). Stated differently, a company should be engaged in ongoing activities for the purpose of understanding customers' current and future needs. Although baptized as an ongoing customer centric orientation, it rejoins Kohli and Jaworski's (1990) market orientation. While market orientation has been described in a different ways (Kohli and Jaworski, 1990), it refers to: "the generation of appropriate market intelligence pertaining to current and future customer needs, and the relative abilities of competitive entities to satisfy these needs; the integration and dissemination of suck intelligence across departments; and the coordinated design and execution of the organization's strategic response to market opportunities" (Deng and Dart, 1994, p.726).

An ongoing customer-centric focus or a market orientation is perceived to be a source of competitive advantage for companies and has a positive effect on business performance (Deshpandé et al., 1993; Narver and Slater, 1990; Slywotzky and Wise, 2003). The company is dedicated for being customer focused across all its processes. The customer centric orientation acts to show the customer the commitment to offer them value, and that having customer satisfaction is the major objective of the company thus engendering increased

cooperation from the customer. As information sharing develops, the cooperation develops, allowing the company to focus on identifying additional needs and recommending solutions. At the same time building trust and personal relationship develop (Peppers and Rogers, 2004).

Trust encourages relationship members to work to preserve the relationship, therefore contributing to increasing relationship duration and forming and fortifying commitment (Moorman et al., 1993; Morgan and Hunt, 1994). The ongoing customer centric orientation is clearly very beneficial and important to those seeking to manage customer relationships.

3.2.1.2 CUSTOMER KNOWLEDGE

To deliver superior customer services, companies are required to comprehensively learn and understand their markets and customers (Woodhurf, 1997). Customer knowledge is a major purpose of CRM, and customer information plays a key role in such an approach (Croteau and Li, 2003). When implementing a CRM approach, an organization has in mind to build a comprehensive customer information database (Winer, 2001). By integrating and managing customer information, CRM assists organizations in gaining better knowledge of their customers and as a result managing customer relationships effectively (Christopher et al., 2001).

Not only CRM helps delivering a superior customer services experiences and represents an opportunity for firms to achieve a competitive advantage by offering more value to customers (Campbell, 2003); CRM can enable more effective marketing (Grant and Schlesinger, 1995) by creating intelligent opportunities for cross-selling (Hill, 1998) and faster new product introductions (Ruediger et al., 1997) as a result of the coherent picture of the customer built from the customer knowledge. CRM will progressively reduce the dependence of companies on surveys to gather data. Collection of data related to customers' behaviors will be an ongoing process.

This rich repository of customer information and knowledge updated through regular interactions with customer will help marketers to develop and market customer centric products successfully. Through the delivery of more responsive and customized services to customers, CRM increases customer satisfaction thus improving customers' loyalty (Croteau and Li, 2003). In this way, both the company and the customer are satisfied. Financially, the

company is satisfied and moreover; the company is showing to their customers that they are interested in them as customer, and value their inputs. Gengler and Leszczyc (1997) noted that the duration of buyer-seller relationships depend on the customer's subjective assessment of the value of a relationship that is continuously updated based on perceptions of previous experiences.

3.2.1.3 LONG-TERM RELATIONSHIPS

Establishing long-term relationships with customers is the fundamental purpose of CRM implementation. Building on the paradigm of relational marketing, CRM stresses the importance of long-term relationships (Payne and Frow, 2004; Ryals and Knox, 2001; Ryals and Payne, 2001). This notion is closely related to an awareness of the positive correlation between customer retention and a company's profitability (Pfeifer and Farris, 2006; Reichheld et al., 2000). Customers who are loyal are committed to the relationship.

Therefore, CRM emphasizes the issue of pursuing long-term relationships with profitable customers in order to maximize customers' value in the long term. By being and staying interactive with customers, enterprises can demonstrate to their customers that they are interested in them as customers and value their inputs (Peppers and Rogers, 2004). In order to entice customers to stay longer, companies attempt to improve existing satisfaction levels. Satisfied customers are generally more inclined to remain in the relationship and with the company, thus making them a retained customer, whereas an unsatisfied customer will generally seek to replace the provider with an alternative.

The connection between customer retention and profitability is supported by the observation that repeat customers generate double the sales as compared to new customers (Winer, 2001). As information sharing amplifies, at the same time satisfaction, loyalty and relationships develop. Attracting and retaining customers in order to develop long term relationships and gain the benefit of customer loyalty are the results of a CRM approach (Chen and Popovich, 2003; Galbreath, 1998).

However, not all customers represent the same value to the firm (Kutner and Cripps, 1997) and accordingly the organization can choose the customers to keep in contact with and build long-term relationships. To achieve this, the company needs to evaluate life-time value and long-term profitability of its customers (Winer, 2001). One of the benefits of CRM

approaches can be measured through improvement to customer loyalty and satisfaction. There are industry best-practice measures specific to CRM such as return-on-customer (ROC) which allows organizations to measure previously intangible metrics such as customer loyalty and rate of lifetime customer value generation. One of the metrics is the willingness of a customer to recommend the company to a friend.

3.2.2 CRM, THE BEAST

Putting into action a CRM approach is a major task, which involves the entire organization. Although the CRM is consistent with marketing theory, is widely available today and promises good business returns (Buttle, 2004; Greenberg, 2002); reaping the desired benefits of it does not appear to be easy (Paulissen et al., 2007).

The performance impacts of CRM present a mix of findings (Chen and Ching, 2004). An important aspect in the CRM literature and that cannot be neglected, is the well documented failures. CRM has continued to face serious difficulties and implementation failures (Adebanjo, 2003; Davids, 1999; Nairn, 2002; O'Brien, 2004). The underlying expectation of CRM approach is to deliver customer satisfaction, longer relationships and an enhanced performance; however a number of research papers, groups and consultants have published inconsiderate reviews about the CRM, focusing on the lack of advantages gained from CRM investments. For example, the META group states that 55% of all CRM projects don't produce results (in Davis, 2002; in Seligman, 2002), while Preslan (2003) shows that only 16% of CRM projects provide real, reportable business return on investment.

In response to the numerous reports of CRM failure (e.g., Davis, 2002; Rigby et al., 2002) and the practitioner-oriented reports (e.g., Bose, 2002; Plakoyiannaki and Tzokas, 2002; Rigby et al., 2002; Starkey and Woodcock, 2002) as to why CRM fails, CRM vendors have undertaken new development, focusing on adding additional features, benefits and value (Songini, 2002).

3.3 CRM ISSUES

Although CRM is introduced by suppliers and consultants as to makes good business sense (Buttle, 2004; Greenberg, 2002), it has continued to face serious failures (Adebanjo, 2003; Davids, 1999). Of number of research published by academics, businesses magazines

as well as research groups have provided evidence of CRM failures focusing on the lack of benefits gained from the significant CRM investments. Successful CRM approach requires visible, concentrated and long-term senior management buy-in, a significant organizational change and adequate information technology support if its full benefits are to be realized (Bohling et al., 2006; Ling and Yen, 2001; Mendoza et al., 2007).

Hereafter, we will present some of the fundamental issues found in the CRM literature. A review on the critical success factors of the CRM and main factors of success are analyzed in details in a subsequent chapter.

3.3.1 POOR OBJECTIVE DEFINITION

CRM failures can be related to the overall expectations and aims of the initiatives. When implementing a CRM approach, companies anticipate benefits and progress in many areas of the business (e.g., financial performance, customer service quality, sales and marketing effectiveness…). Understanding the business benefits of a CRM approach is considered to be a critical success factor (Wilson et al., 2002). The many metrics and expectations are the most common cause of CRM failures, as poorly defined goals can lead to a misunderstanding in CRM contribution. The low awareness of CRM benefits and the lack of clearly defining the expectations are perceived to be a barrier to successful implementation of a customer relationship management approach (Ryals and Payne, 2001).

3.3.2 INFORMATION AND COMMUNICATION TECHNOLOGIES

For a company to shift to a customer centric approach, it must plan for more data and greater integration from both its front office and back office (Reynolds, 2002). Dewhurst et al. (1999) propose that when companies have large amount of customer data, they can manage customer relationships more effectively and efficiently through more customization by using data-warehouse, data-mining and other information technologies. Other benefits of information technologies are the facilitation of the different CRM processes (Clark and Smith, 2003; Gummesson, 2002; Ryals and Knox, 2001). To uphold these processes, a well organized IT infrastructure and architecture is required to communicate effectively through the whole organization (Zikmund et al., 2003). Information systems across the several functions in the organization should be integrated. And the company should display enough

infrastructures to capture customer data from all customer-facing interaction points. The information and communication infrastructure identifies which information systems interact and integrate with each other facilitating and supporting business processes. By integrating and synchronizing customer information from the different information systems and touch points, communication and collaboration between several functions are facilitated, and more insight about the implicit pattern in customer behaviors and market emergence is identified (Brown and Gulycz, 2002; Rigby et al., 2002).

3.3.3 CHANGE MANAGEMENT

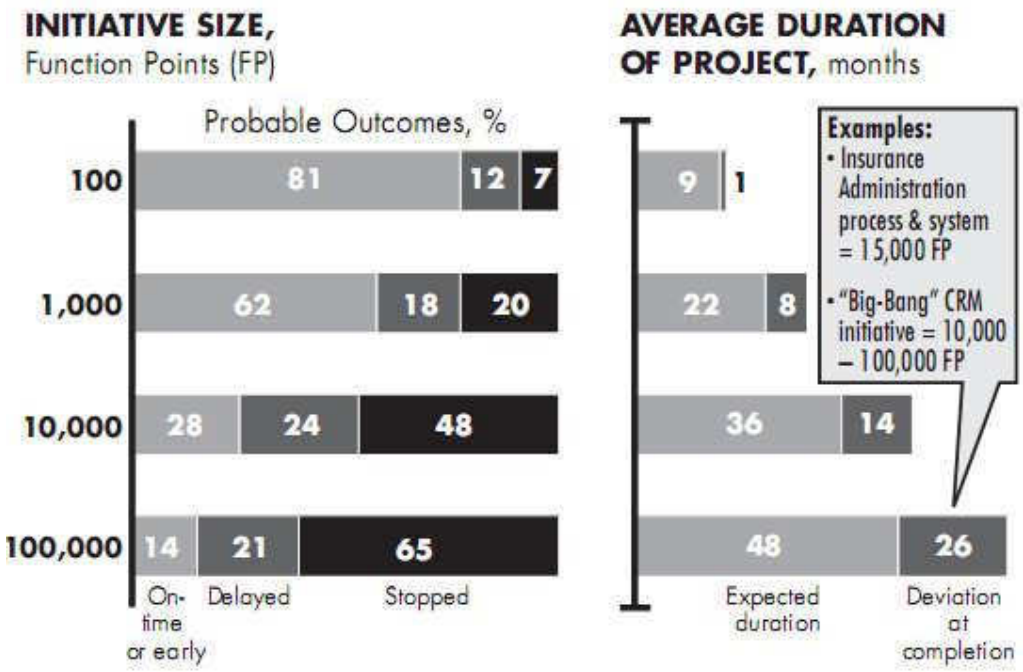
Because of complexities in the implementation of a CRM, the change in culture and attitude within the company and the switch from a product-oriented culture towards a customer-oriented culture is the basic constituent for a success (Galbreath and Rogers, 1999). CRM approach significantly impact jobs, roles, skills, and the daily routine of an organization. Without adequate preparation, employees and departments will be apathetic to the change. Peppers and Rogers (1997) suggest that change management is a critical factor for successfully implementing a CRM. The people aspects of large initiatives are often the most challenging part, with politics and organizational conflicts being the norm in CRM approaches. When implementing CRM, it is important to communicate the determined objectives, as well as to follow-up on those objectives to soften the upcoming revolution of the system. Employees who don't have a good understanding of reasons for the change will resist against the modifications suggested by CRM (Goldenberg, 2002).

3.3.4 RELATIONSHIP MANAGEMENT PROCESS

After setting the objectives, a firm should define the planning stage and adequately determine the business processes. Business processes can be considered as a collection of tasks or activities that together result in a desired business outcome (Davenport and Beers, 1995; Hammer, 1996). Stated differently, a business process refers to a group of activities that convert organizational inputs into desired outputs. It is the approach in which all the resources of an organization are used in a reliable, repeatable and consistent way to achieve business' goals. Monitoring CRM processes, like complaint management or customer support, is a key activity to hold organization's effectiveness and to improve and updated processes (Goldenberg, 2002).

The many failures of CRM can be brought to the fact that CRM changes the way a company interacts with customers and the daily jobs of personnel throughout the organization. These implementations are strategic in nature, change policy and businesses practices, and require the entire organization to coordinate closely toward specific goal. Like all complex initiatives, risk exists and must be managed. In his book "Patterns of Software System Failure and Success", Jones (1996) states that implementing CRM in an incremental approach is much easier to manage and demonstrates a lower risk of failure (Figure 2).

FIGURE 2 ASSESSING CRM PROJECT RISK



Source: Jones, 1996

4 CRM APPROACH ESSENTIALS

CRM is an organization-wide ongoing process providing a systemic approach to aligning customer business processes, technologies, and the customer. The aim of such an approach is the generation of a foundation of commitment between firms and customers. To succeed in such an approach, companies have to centralize all information gathered from the different interactions with the customers in a manner which will permit the enterprise a full view of its

customers. Information plays a key role in building and maintaining customer relationships (Jayachandran et al., 2005).

To be customer-centric, companies need to collect and store meaningful information in a comprehensive customer database. A customer database is an organized collection of information about individual customers or prospects. The database must be current, accessible, and actionable in order to support the generation of leads for new customers while supporting sales and the maintenance of current customer relationships. Smart organizations are collecting information every time a customer comes into contact with the organization. Based on what they know about the individual customer, organizations can customize market offerings, services, programs, messages, and choice of media. A customer database ideally would contain the customer's history of past purchases, demographics, activities, interests, opinions, preferred media, and other useful information. Also, this database should be available to any organizational units that have contact with the customer.

4.1 DATA AND INFORMATION

An inevitable outcome of CRM approach is the need to collect more data in order to extract more insight and information about customers and markets. The starting point of relationships management is often the data. Companies nowadays can collect huge amount of data on their customers and turn them into information for their strategic business processes. However, too rarely companies sift data to create knowledge and intelligence for the purpose of business decisions (Davenport et al., 2001). The important issues are to identify what kind of information the company needs; about whom they will collect this information; and how they will manage such information for future use. Thus, getting in contact with the customer and customer identification is a critical starting point for the CRM approach. Park and Kim (2003) propose that according to the content and interaction types, customer information can be classified into three types:

- Information of the customer;
- Information for the customer; and
- Information by the customer.

First, "of the customer" information consists of personal and transaction data about a customer. It is the type of information mostly collected for CRM implementations. Firms obtain the personal data and are able to recognize the customer's sales volume, profitability, purchasing patterns, frequency, preference, etc. For example, hotels and service companies keep enormous amount of "of the customer" information in their database systems for organizing and managing customer journeys and also to identify the most or least profitable customers (Chathoth, 2007). Database marketing, also called target marketing, is based in the strategic use of "of the customer" information (Park and Kim, 2003).

Second, product, service and organizational information that are perceived useful by customers is referred to as "for the customer" information. This type of information is presented through diverse communication media so that customers acquire and process it to make more knowledgeable decisions. Firms can provide such information by many collaborative media (Park and Kim, 2003).

The third type is "by the customer" information. This is the non-transactional customer feedback information that includes customer complaints, propositions… Information of this type must be included in the customer data profile because such information is what makes customer interactions more powerful (Wells et al., 1999). This type of information can be applied to develop new products and services or improve critical business processes (Park and Kim, 2003).

As the availability of appropriate information is an essential component for the development of knowledge so does knowledge for the development of strategies, goods and services in response to fast-changing business environment (Ballantyne, 2000). When data is transformed into knowledge, with the tacit knowledge being transformed into explicit knowledge, an organization is said to be managing relationships by integrating knowledge management (Bose and Sugumaran, 2003). Possessing knowledge management capabilities has been identified as a critical enabler to supporting successful CRM initiatives (Julta et al., 2001).

The information systems literature contains a distinction between data, information and knowledge. Vance (1997) defines information as a meaningful interpretation of data and knowledge as information that has been authenticated and though to be true. Alavi and Leidner (1999) went ahead and referred to knowledge as a justified personal belief that

increases as individual's capacity to take effective action where an action refers to the possible combination of physical skills, physical competencies and cognitive or intellectual activity. Furthermore, Alavi and Leidner (1999) define knowledge management as the systemic and organizationally specified process for acquiring, organizing and communicating both tacit and explicit knowledge to improve effectiveness and productivity. It is said that knowledge management encompass all forms of business relationship management (relationships with customers and partners), intellectual assets management (employee knowledge and expertise) and content management (Julta et al., 2001).

Since our study is oriented towards the CRM, we can say that it is essential for an organization to capture data, manage and deliver real time authenticated customer, products, and service information in order to improve customer response and provide faster decision-making based on reliable information.

4.2 CRM FRAMEWORK IN THE LITERATURE

As mentioned earlier, the cornerstone of customer relationship marketing is the relational marketing. This type of marketing requires a much greater degree of firm-customer information sharing than the transactional marketing (Selnes and Sallis, 2003).

Same as the CRM definition, we can find several models for describing the customer relationship management approach. Classifying them, we would find three board categories: operational sketch, process sketch and strategic sketch. The three categories represent differently the CRM approach, but what we can find common to all models is the capture and use of customer information so that firms tighten the commitment. Hereafter, we will exhibit the three different frameworks.

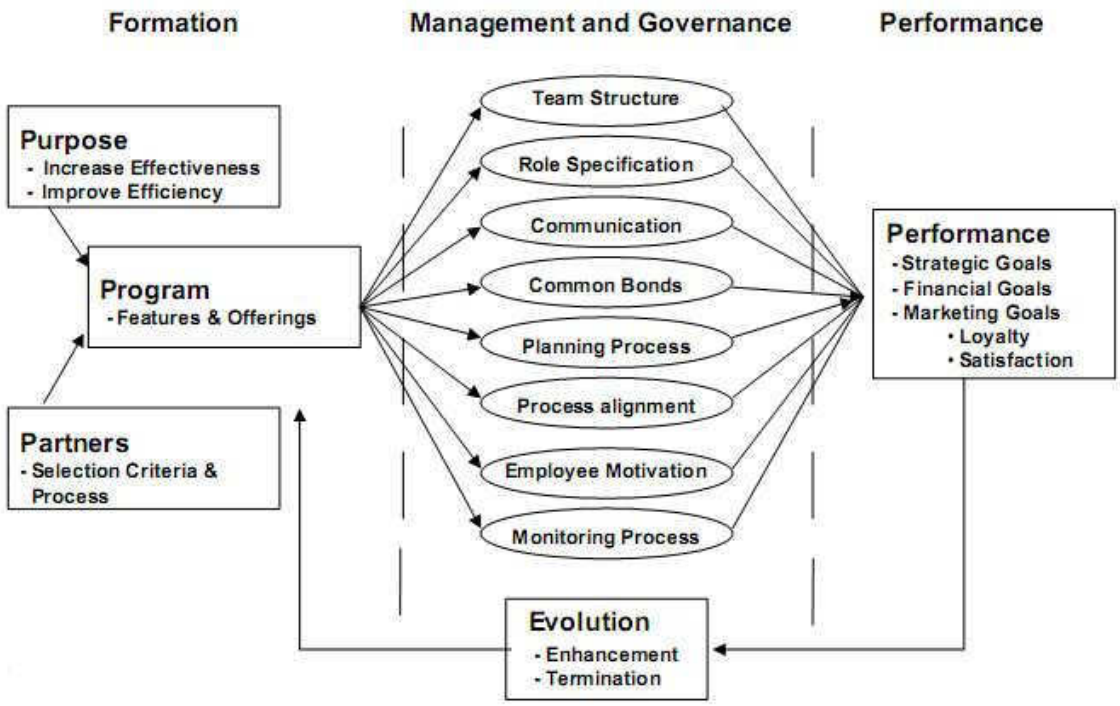
CRM operational view is the representation of the technological aspects of the system. There are three main categories of CRM that can be implemented separately, incrementally, or integrated from the beginning. They are the three categories of CRM systems: analytical, operational and collaborative CRM. A representation model of such the operational model will show the architecture and relationships between the various components. An example of the operational model of CRM is the data warehousing institute representation and Greenberg's (2004, p.263). Anton and Petouhoff (2002, p.4) represent the fully integrated CRM as a combination of the operational CRM and the analytical CRM. It is when

operational CRM is undertaken in conjunction with analytical CRM that the total CRM system has a higher probability of providing the expected outputs and benefits. The technological model of CRM defines the approach as an IT application that consists of three basic subsystems: a collection component, a database component and a delivery system (Goodhue et al., 2002; Zikmund et al., 2003). Other than those three components, a CRM approach can be extended with an Internet based gateway; the e-CRM (Greenberg, 2002; O'Brien, 2004; Turban et al., 2002).

The CRM approach described as a process underlies different blocks or stages in the customer relationship. The basic assumption is that the firm conducts ongoing information collection, refines, enhances and applies the information appropriately. Data about customers is collected and stored. As customer data is analyzed, information is created, stored and made available to customer contact personnel to act. The feedback from the information use is used to measure performance and success. Following the feedback and the appraisal, customer data is updated and refined, new information is created and the entire process is enhanced. Parvatiyar and Sheth (2001) developed a four-stage CRM process framework (Figure 3) comprised of four sub-processes:

- A customer relationship formation process
- A relationship management and governance process
- A relational performance evaluation process
- A CRM evolution or enhancement process.

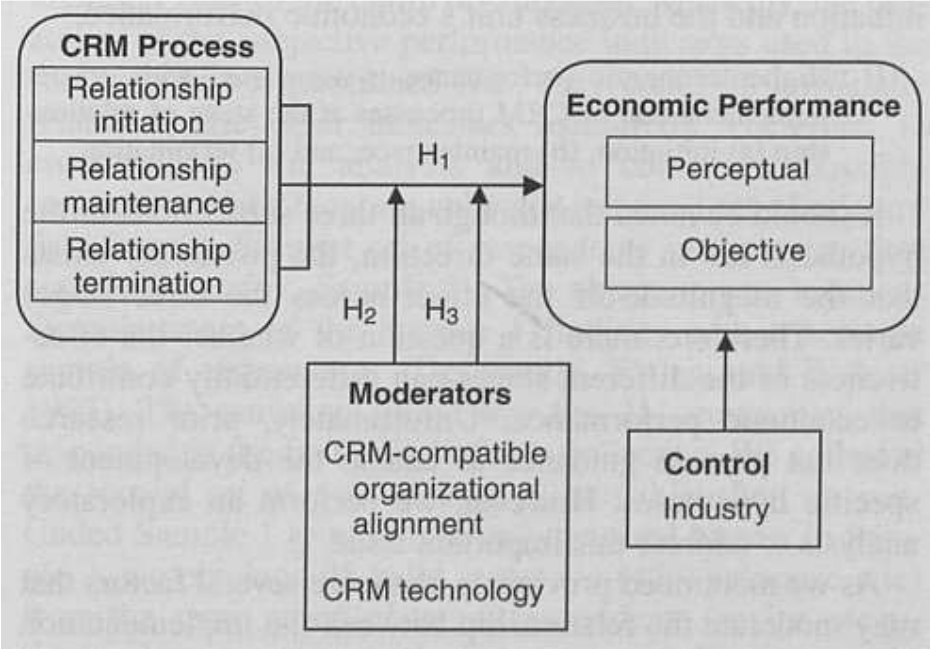
FIGURE 3 THE CRM PROCESS FRAMEWORK



Source: Paravatiyar and Sheth (2001)

Another CRM Process framework is the one presented by Reinartz et al. (2004). They suggested that the CRM Process is a three dimensional model, where the three dimensions are: relationships initiation, maintenance, and termination. Each of those dimensions has sub-dimensions. The initiation dimension has three sub-dimensions (customer evaluation, acquisition, and recovery management), where the maintenance stage has four sub-dimensions (customer evaluation, retention, up-selling/cross-selling, and referral management), and the termination stage is divided into two sub-dimensions (customer evaluation, and exit management). The model of the CRM Process is presented in the next figure.

FIGURE 4 A MODEL OF THE PERFORMANCE OUTCOMES OF THE CRM PROCESS



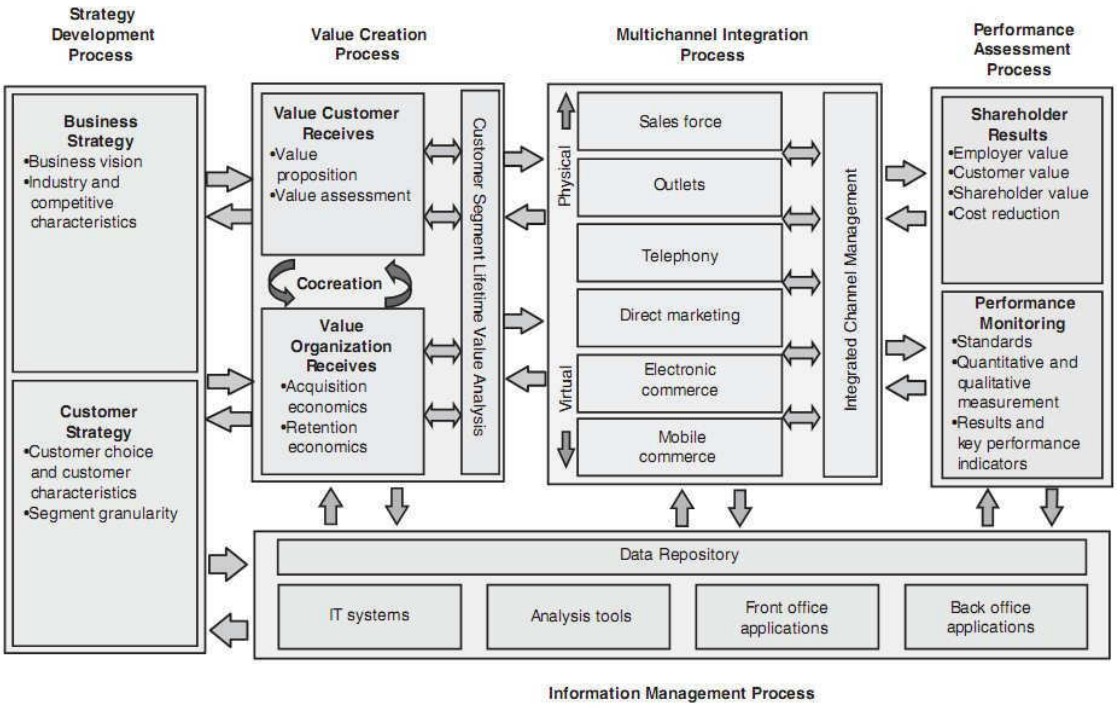
Source: Reinartz et al. (2004)

In the formation process of CRM, the firm chooses the customers with whom it wishes to create relational activities aiming the creation of cooperative or collaborative relationship. At the end of this process, a CRM program is developed and rolled out and must be managed and governed as well as the relationships. The degree to which relationships are managed will depend on the perception on the relationships. From this point forward, periodic assessment of results in CRM is needed to evaluate the program. These evaluations will help in taking corrective actions, whether the enhancement or the termination of the relationship marketing objectives and program features.

At the most advanced level, the CRM model is defined as a strategic model and is based on the view that effective and successful customer relationship management approach is the result of coordinated cross-functional processes and activities within organizations (Payne and Frow, 2005). In their CRM framework representation, Payne and Frow (2005) claim that such description will broaden the understanding of CRM and its role in enhancing customer value, as a result, shareholder value. The author's framework is presented in the figure below and does illustrate the five business processes (strategy development, value creation, multi-channel integration, assessment of performance and information management) working together in harmony to provide the greatest value to shareholders and customers.

The strategic framework of CRM emphasizes the relationship between the various business processes, underlining the iterative and interactive nature of the customer relationship management approach.

FIGURE 5 THE CRM STRATEGIC FRAMEWORK



Source: Payne and Frow (2005)

Having evidenced the various models of a CRM approach, we can say that the essential objective remain the same. Companies search to identify the finest customers with whom profitable long term relationships can be established. An effective CRM demands that a firm be capable of gathering intelligence (knowledge) about its current and prospective customers and applying that intelligence to shape its subsequent interactions with them.

In the following section, we will present the CRM process framework adopted in our research.

4.3 THE CRM PROCESS FRAMEWORK

In this study, we will adopt a more comprehensive framework for a customer relationship management approach, reflecting the intent of Jayachandran et al. (2005) and

Peppers and Rogers (2004) and which does balance with the CRM perspective mentioned earlier in this chapter. CRM approach is an incremental process of interrelated dimensions designed to systemize the capture and use of customer information for the purpose of better managing customer relationships. In addition, and consistent with the market orientation (Kohli and Jaworski, 1990) philosophy, CRM collects and stores customer data; shares and diffuse customer knowledge. Hence, customer relationship management approach is implicitly a potential contributor to organizational knowledge and has its similarities with knowledge management systems (e.g., Alavi and Leidner, 2001; Davenport et al., 2001; Shoemaker, 2001; Zablah et al., 2004). Knowledge Management Systems are developed to support and enhance organizational processes of knowledge creation, storage/retrieval, transfer, and application (Alavi and Leidner, 2001).

Peppers and Rogers (2004) have presented four implementation tasks for the CRM process. They have baptized the process for a customer relationship management approach as the "IDIC implementation process". This model has a four tasks foundation: I for Identify customers; D for Differentiate customers; I for Interact with customers; and C for Customize treatment. They say that these implementation tasks (IDIC) are likely accomplished following the presented sequence.

Jayachandran et al. (2005), and according to the CRM literature they reviewed, have baptized the customer relationship management approach as the "relational information process". They suggest that this process consists of five tasks: information reciprocity; information capture; information integration; information access; and information use.

As we have mentioned in the introduction of this part, we will adopt a framework for the CRM approach which reflects both perspectives: Peppers and Rogers (2004) and Jayachandran et al. (2005). As a matter of fact, and according to both perspectives, any CRM approach can be broken into two large tasks: the task of analysis, and the task of action. For the purpose of analysis, the enterprise works in the back-office, away from the customer. And in the action phase, which is a customer-faced step, the enterprise gets into contact with the customer and requests its participation.

There is no order of sequence for the CRM tasks, as the customer relationship management approach is an ongoing process. We will present the different tasks defining the CRM process.

4.3.1 ANALYSIS

The analysis stage in the CRM approach represents the analytical CRM. This area concerns the back of the office tasks. It concerns the stages dedicated to the treatment of the information, from the data collection, till the sharing of information and knowledge.

4.3.1.1 IDENTIFY, CAPTURE AND INTEGRATE

The first phase of a customer relationship management approach is to know each customer. The goal of identifying customers refers to recognizing each customer at every relational channel (Peppers et al., 1999) and then linking those different data points to develop a full picture of each particular customer for discovering and acquiring (Thompson, 2004) customers.

The identification stage also necessitates the organization of the various data resources of the company in order to have a customer-specific view. Often, customers have multiple channels to contact the company, and thus an enterprise should be able to recognize the customer at each interaction channels (e.g., face-to-face, phone, internet). The customer could interact with sales, customer service, and marketing department (Jayachandran et al., 2005). Not only recognizing each customer, but organizations must know as much detail as possible to each customer, to express the uniqueness of each customer at each interaction point and department. Each relationship should be exclusive and only exists between the company and a customer. Relationships should not be with markets or segments (Peppers and Rogers, 2004).

For succeeding in its customer-centric strategy and approach, the company needs to know the information of each single customer of the market population. Having information about the characteristics of the market population will help the company in accurately making decisions and taking actions bringing an added value to each customer (Peppers and Rogers, 2004). The knowledge of the customer and the exclusivity of the relationship will enable the company to treat the customer differently even within the same segment or niche population.

The identification phase of the customer is not very easy, and the difficulty can be traced according to the business model and interaction structure of the company. As mentioned previously, all interactions between the company and a customer are sources for

identifying the customer. In the identification phase, Peppers and Rogers (2004) refer to many activities the organization should be engaged in.

The organization should define first and decide which data or information to collect based on its needs. Building customer relationships requires detailed information about customers. After defining the looked-for data, the company will start the collection phase. The data collection mechanism includes all interaction channels of the company. The information acquisition activity that captures data from customer interactions with various sources and channels is a critical aspect for the customer relationship approach (e.g., Kohli and Jaworski, 1990; Menon and Varadarajan, 1992; Narver and Slater, 1990; Peppers and Rogers, 1997; Sinkula, 1994). Once data is collected and the customer identity is fixed, identity must be linked to all transactions and interactions with that customer, at all points of contact within all the enterprise's different operating units and division. The customer's identity must be integrated into the information systems the enterprise uses to ensure the assimilation of customer information from all firm-customer interactions to develop a detailed history of the customer (Jayachandran et al., 2005). Now that the customer is recognized, identifying information about individual customers must be stored and maintained in data repository. Storing data in an accessible format is critical to the success of a customer-centered enterprise (Peppers and Rogers, 2004). The stored data should be regularly verified, updated, improved, or revised (Greenberg, 2004; Zikmund, 2003). Making data available to the relevant people and functions is a crucial component to the responsiveness of the firm in the customer relationship approach (e.g., Kohli and Jaworski, 1990; Narver and Slater, 1990). Thus providing front-line personnel (such as sales, marketing, and customer service) with access to updated and integrated individual customer-identifying information is an important phase in the identifying phase of the CRM approach. All the identification phase relies on the obtainment of as much data as a company can through interacting with customers. However the development of information is contingent on customers' trust (Berry, 1999). Peppers and Rogers (2004, p.81) highlighted the importance of trust in managing customer relationships and state "Relationships require information, but information comes only with trust". The customer must feel comfortable when getting relational with the company, especially when sharing information. Customers' information is both competitively sensitive and threatening to individual customer privacy, and thus it is critical to secure it. As the purpose of the identification phase is to enable the

company to develop closer and more profitable relationships, securing information and developing trust with customers is an essential activity. Therefore, the company needs to ensure the security of customer's data and information.

Ultimately, the central purpose of the identification phase in the CRM approach is to enable the development of closer, more profitable relationships with individual customers. These relationships will be facilitated by the availability of the information that will make the customer's next transaction simpler, faster, or cheaper. This phase is facilitated by the information and communication technologies. CRM technologies[1] enable the information integration and make it available across the entire organization thus facilitating more efficient and effective customer interaction (Day, 2003). Technology is enabling enterprises to accelerate the customer information flow. From information needs, to data capture and to information sharing technology is enabling enterprises to identify customers in ways never before imagined. CRM expert Stan Rapp (in Peppers and Rogers, 2004) has said that the computer has brought to marketing "three awesome powers": the power to record, the power to find, and the power to compare. The more the company stores and integrates data from all corners of the enterprise, the more rich in value the customer information becomes in planning and executing customer-focused strategies.

The continual process of identifying customers for the intention of managing customer relationships requires that customer information be captured, organized, aggregated, integrated, and disseminated to relevant individuals or groups throughout the enterprise in real time.

In a service context, it is critical that an enterprise's customer-facing people have ready access to customer-identifying data, as well as to the records attached to particular customer identities. The enterprise's competency in using information depends on the identification phase at every aspect of the customer-facing functional areas: direct marketing, customer service, sales (McKean, 1999).

[1] CRM technologies include front office application that support sales, marketing, and service; a data repository; and back office applications that help integrate and analyze data (Greenberg, 2001, p.40-42)

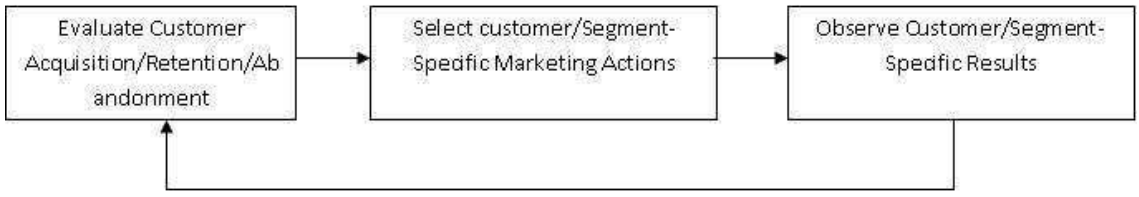
4.3.1.2 DIFFERENTIATE AND ACCESS

The fundamental nature of the customer relationship management approach is treating different customers differently. Because not all customers are equally profitable, and there are invariably segments that differ in terms of customer profitability, enterprises are attracted to identify profitable customers and develop strategies to retain them and make them more profitable. This phase is a basic tenet of the CRM (Roberts et al., 2005).

The enterprise should be able to develop market advantage through the learning about individual customers or small segments and to use this knowledge. Identifying each customer and linking the information about that customer to various business functions permits the enterprise to better extract the requirements and subsequently creating added value for these targets. This phase allows the enterprise to recognize the value appropriate to each customer. The differentiation process should identify segments of profitable customers and those of unprofitable customers allowing the organization to act. Either to make them more profitable (or make them profitable) or come to an end with them. Consequently, the enterprise will engage itself in a mutual collaboration with each customer which will grow stronger over time. Customers will reward the enterprise by repeated transactions (Bell et al., 2002).

By understanding that every customer is distinctive, the enterprise reaches an important step in the development of a customer relationship management approach where partitioning plays a key role (Bell et al., 2002). In their "customer-asset-based marketing model", Bell et al. (2002) describes the segmentation process of customers through three stages. This model, shown in Figure 6, illustrates how a firm can realize the differentiating phase.

FIGURE 6 CUSTOMER SEGMENTATION PROCESS



Adapted from Bell et al. (2002)

The object of such a process is recognizing the value of each customer or segment. It will enable the enterprise to prioritize its competitive efforts (allocating relatively more time,

effort, and resources) to profitable customers. Knowing the expectations of a customer makes it possible for the enterprise to accommodate to that customer's needs. The outputs of such an action are the development of customer's loyalty, and increasing his value to the enterprise (Peppers and Rogers, 2004).

The first step for a customer-centric enterprise is to decide which customer base to focus on. When focusing on that customer base, the organization differentiates customers with respect to their profitability (Chen and Popovich, 2003). When it focuses on customer's needs and recognizes that each customer has his or her own unique needs and demands (Peppers et al., 1999), the enterprise will find it easier to increase its share of customer. The enterprise will be answering a greater portion of the customer's expectations and needs. Doing so, not only leads an enterprise to respond back to customer's needs, but can lead the enterprise to develop or procure other products and services for the customer, which are totally unrelated to the original product but closely related to the customer's need, thus augmenting its services (Peppers and Rogers, 2004).

Categorizing customers into different groups, based on their needs, in order to take action is the essence of the differentiating phase. The new tools of information and communication technology -not just the World Wide Web, but customer databases, sales force automation, marketing and customer analytics applications, and the like –are making customer relationships activity ever more cost-efficient and practical. The segmentation process is grounded fundamentally on the information and communication technologies capabilities. In fact, Bell et al. (2002) state that the ability to segment and categorize customers into finer and finer groups, and then matching each group with an appropriate product offering depends on information and communication technologies. Peppers and Rogers (2004) share the same point, and emphasize the role of ICT in the differentiating phase. It permits the enterprise to go beyond market segmentation, and places the customers into portfolios rather than ordinary segments based on product's appeal. Peppers and Rogers (2004) made a distinction between market segment and customer portfolio. They state (p.144) that state that "a market segment is made up of customers with a similar attribute. A customer portfolio is made up of similar customers. The market segmentation approach is based on appealing to the segment's attribute, while the customer portfolio approach is based on meeting each customer's broader need".

Understanding different customers' different needs is critical to a customer relationship management approach. But to successful in a CRM approach, an enterprise should do more than gathering and analyzing aggregate information. Storing information is only a first step in creating the knowledge needed to pursue a customer-centered strategy successfully (Alavi and Leidner, 2001; Crosby and Johnson, 2001; Davenport et al., 2001; Hirschowitz, 2001; Nargundkar and Srivastava, 2002). Resulting knowledge should be applied and managed in ways to nurturing the customer relationships.

According to Wayland and Cole (1997), gathering customer knowledge without leveraging it across the enterprise results in missed opportunities. Once the enterprise has ranked customers by their value to the enterprise, and differentiated them based on their needs, it conducts an ongoing, collaborative dialogue with each customer. This interaction helps the enterprise to learn more about the customer, as the customer provides feedback about her needs. The enterprise can then use the customer's feedback to modify its service and products to meet her needs.

4.3.2 ACTION

So far, we have discussed the analysis stage of the CRM process which involves many tasks: identify, capture, integrate, access, and differentiate. They are in the back scene of the CRM approach and do not connect with the customer. In the following section, we will describe the action stage of the CRM approach.

The action oriented tasks make up the operational CRM. It involves the communication with the customer. Interacting or staying relational with the customer and using the knowledge to customize the service are the main tasks of the action CRM.

4.3.2.1 INTERACT, AND STAY RELATIONAL

The main reason for interaction is to get more information directly from a customer in order to enhance the enterprise's responses for the customer. It aims the connections' improvement with the customers (Xu, 2002) facilitating the differentiation from competitors.

As specified in the definition section, the CRM approach is an ongoing process where the company needs to get as close to its customer as possible. The relationship becomes tighten and evolves as the customer and the enterprise deepen their awareness of and

involvement with each other. Organizations should continuously learn about its customer (Peppers et al., 1999). The finest method of getting to know an individual and to get information about him is to stay relational with him, to interact with him (Jayachandran et al., 2005; Kim et al., 2003; Peppers and Rogers, 2004; Xu, 2002).

In the customer-centric paradigm, interacting with the customer is a mutually beneficial experience, for both the enterprise and the customer. The enterprise learns about the customer, its preferences and needs so it can understand his value to the enterprise. And the individual feels his existence to the enterprise which acknowledges the customer role. The interaction, a key defining characteristics of CRM (De Wulf et al., 2001), is a collaboration in which the enterprise and the customer work closer to make each transaction more beneficial for both. The result of this collaboration is that both customer and the enterprise will benefit and want to continue to work together, since it enables the enterprise to respond appropriately to customer's request (Kim et al., 2003).

The relational task moves the customer and the enterprise from a transactional approach to a customer relationship approach. Therefore, interacting with customers is important for a firm to execute its relationship marketing strategy (Day, 2000). For the enterprise enrolled in a relationship marketing strategy, to goal is to generate a collaborative feedback loop with the customer enabling the personalized treatment as specified by him. They ensure that each customer gets exactly what he needs.

The interacting task refers to the process that enables customers to interact and share information. This task enables the company to generate and use individual feedback from each customer to strengthen and deepen its relationship with. It presents also a way of keeping track with customers (Patton, 2001).

Through interacting with customers, the enterprise builds an attractive virtual community (Kim et al., 2003). The exchange with the customer can be on the basis of handling a customer inquiry or gathering information of and by the customer. In either ways, the company must collect information to feed its CRM approach. Each interaction is a chance to build deeper relationships with customers, and enables the company to gain important information from a customer that is unavailable to competitors. Then information leads to knowledge about the customer, and used knowledge turn into a valuable business asset, because the origin is unavailable to other enterprises.

With interactive technologies, firms are capable of interacting, one to one, directly with their individual customers, either directly or through various interactive communication channels. Information and communication technologies provide any kind of dialogue tool to customers enables the enterprise to secure deeper, more profitable, and less competitively vulnerable relationships with each them (Peppers and Rogers, 2004).

Each interaction should bring more knowledge to the company. All interaction channels should provide the customer with the same information, and interactions should continue where the last one finished. A customer does not necessarily want to receive more information from the enterprise; rather he wants to receive better, more focused information – information that is relevant to him, individually. This interaction is enabled by sophisticated interactive technologies. Information and communication technologies guarantee that the customer-contact personnel remember the individual customer and his preferences. The more the personnel know about the customer and have immediate access to the customer information and knowledge; the better will be the service by providing individually tailored offers or promotions and more insightful customer service (Cross, 2001). Integration of data and coordination of customer interactions are linked to excellent customer loyalty (Peppers and Rogers, 2004).

During the interacting with customers' task, the enterprise's intention is to establish a dialogue with a customer that will lead to information and learning. As interactions advance, the quality of communications between the company and the customer will improve and increase (Xu, 2002) enabling the understanding of the customer's preferred channel. By identifying which channels the customers prefer and then deciding how they will support seamless interactions, enterprises can gain in sales (Peppers and Rogers, 2004). Such interactions will facilitate the establishment of relationship with the customer (Kim et al., 2003).

The customer relationship management process aims to increase enterprise's share of customer. By interacting with the customer, the enterprise gets the opportunity to learn more about the customer. Now that the company has access to information that competitors don't know, the company should provides the customer with feedback, acknowledging that the investment in the relationship is profitable. The enterprise should act according to what was

collected in the interaction phase. It should customize its offers and behaviors accordingly to the customer's needs.

4.3.2.2 USE AND CUSTOMIZE

The last task of the IDIC framework of a CRM process is the customize treatment stage. As noted earlier in this chapter, it is an action oriented task, during which firms use the information to understand the needs and behaviors of their customer and develop and offer customized products and services. It intends the customization of products and services according to a customer's preferences (Kim et al., 2003).

In order to build and sustain customer relationships, firms should know more about a customer than the competition does, and then deploy that knowledge in a manner to deliver something the competition cannot. It is the essence of market information use (e.g., Menon and Varadarajan, 1992). The customer-oriented enterprise uses what it learns about each customer to customize and/or personalize some aspect of its business with that customer, in order to increase its share of that customer's business.

Research suggests that information technology plays an essential role in enhancing the effectiveness of organizational processes (Hitt and Snir, 1999; Melville et al., 2004). And it is to no exception that IT can be used to improve and streamline the manufacturing and service delivery processes. The technique used by enterprises to deliver personalized products or services to different individual customers is called mass customization. Davis (1987) says that mass customization means the delivery of customized goods on a mass basis. It can be defined as the mass production of goods and services in lot sizes of one.

The essence of the mass customization method is not the customization itself, but rather the configuration. The company pre-produces many modules for a product and its related services. After identifying customers, differentiating them and interacting with them on their needs basis, the company puts different modules together to yield many of possible product configurations (Peppers and Rogers, 1999).

The success of customizing treatment as a tool for managing relationships with customers is caused by the fact that the customer participates in the personalization of the product or service. This step in the customer relationship management approach assures that the customer receives personalized services offers (Dyché, 2002). Sensing that the

collaboration effort invested into the relationship have yielded to a personalized product, the customer is much more likely to be satisfied by the overall performance of the product and will find it costly to start over with a competitor. As a result, more satisfaction and loyalty increase and fewer opportunity losses (Anderson, 1997).

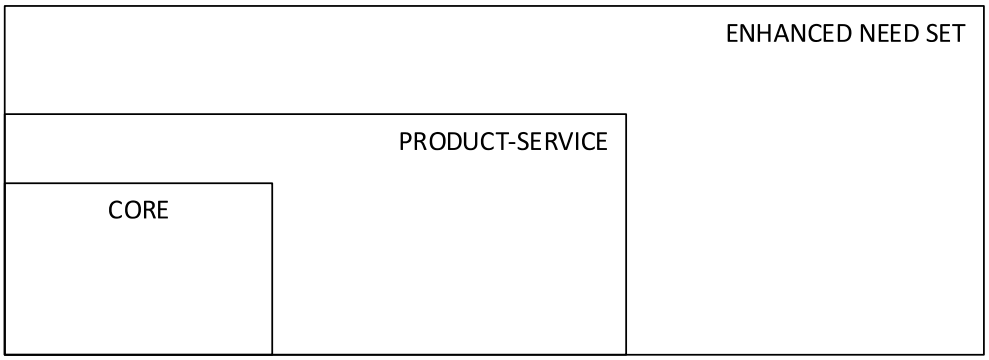
Implementing mass customization not only offers products to customers, but opportunities for stronger relationships as well. By treating each customer uniquely (Peppers et al., 1999) companies better learn the wants, needs, and preferences of each customer facilitating the customization task. In order to tailor products and services for individual customers, Peppers and Rogers (2004) suggest that companies visualize the product as an object that provides a service, a solution that meets a need. They suggest considering the product in its broadest possible sense. It is the product-as-a-service idea which goes beyond the physical product or service. Companies can enhance their service delivery by going through a complex successively levels of need set. Figure represents the three levels which are described below.

1. The core product itself includes its physical nature. Customizing the core product could include: product configuration; features or capabilities; fit and size; color, design, style; and timing or frequency.

2. The product-service bundle includes the services and features that surround the core product. Customization of the product-service bundle could include: invoicing, billing, and cost control; additional services; packaging and palletization of the products; promotion and marketing communication; and help lines and product support.

3. The enhanced needs set includes product or service features that could meet related customer needs, enhancing or expanding the customer's original set of needs. Activities undertaken to customize an enhanced need set could include: offering related products or services; forming strategic alliances with other firms serving the interests of the same customers; providing the customer with opportunities to collaborate in product or service design; and offering value streams of services or benefits following the actual sale of a product or service.

FIGURE 7 ENHANCED NEED SET



Adapted from Peppers and Rogers (2004)

Peppers and Rogers (2004) have focused on four steps for the customer relationship management (identify, differentiate, interaction, and customize). Jayachandran et al. (2005) considers five imperative dimensions to implement a CRM approach effectively (information reciprocity, capture, integration, access, and use). Brown (2000) presents a five-pillar model of strategic customer care required to build up a CRM model. Swift (2001) considers the right customer, right offer, right channels and right time as the essentials for enhancing customer loyalty. Lin (2000/2001) has presented a systemic integrated communications model that may help enterprises identify the potential issues of CRM. All these researchers, and as introduced in the previously parts, imply that companies use new technologies to enhance their customer relationship management. We can identify two main fundamental activities for the CRM approach process: the analysis and the action activities. Each activity can be depicted following many tasks, but as evidenced in the literature (e.g., Jayachandran et al., 2005; Payne and Frow, 2005; Peppers and Rogers, 2004), the essential tasks for any CRM approach are:

- Interacting with the customer
- Information capture and integration
- Information analysis and sharing
- Customization and use

Customer Relationship Management approach is an enterprise-wide commitment that basically relies on Information and Communication Technologies. CRM solutions evolve from simple manual process, to standalone software and eventually integrated systems

spanning all channels and guest points. In the following section, we will give a picture of the link between the CRM approach and the technology.

5 CRM AND TECHNOLOGICAL INVENTIVENESS

As mentioned earlier in this chapter, CRM is an organization-wide ongoing process providing a systemic approach to aligning business processes, technologies, and the customer. This perspective calls for technology integration within the context of the customer relationship approach. In fact, the technology, among other factors, plays a significant role in the success of CRM approach (Chen and Popovich, 2003). Using information technology will enable companies to answer all customers' issues by allowing an effective use of customer database information systems. The presence of Information and Communication Technologies (ICT) has enabled companies to harness the link between front office and back office functions, providing an efficient and effective management of interactions across different customer touch-points. In addition, ICT have capacitated organizations at building knowledge by the means of tools to collect and store unprecedented amount of customer data (Bose, 2002; Greenberg, 2001). Such knowledge is deemed crucial to effective relationship management (Crosby and Johnson, 2001; Hirschowitz, 2001).

5.1 INFORMATION AND COMMUNICATION TECHNOLOGY FUNCTIONS

According to Smith (2006), building an IT infrastructure for CRM is like building a bridge; it takes comprehension of a need, engineering reviewing, building, and re-building. The persistent maturation of the information and communication technologies, global competition and the innovation of new business models have all increased customer expectations. Customers want and expect to have a value-added relationship with companies. They choose how they wish to sustain a dialog with the company. In order to retain customers, it is vital to keep one-to-one exchanges that are intelligent, relevant and profitable and keep the customer in control. Mass marketing, broad segmentation and call centers are no longer enough to reach prospects and customers. Today, organizations leverage technology tools and business processes in using data to put the customer in the center of the relationship. Technology needs to help the company to optimize the value of customer relationship across different channels and product lines (Smith, 2006). Major CRM

application vendors provide solutions in three major components: marketing automation, sales force automation and customer support and field service. These solutions are truly integrated front office applications that involve customer touch points in marketing, sales and help desk.

Park and Kim (2003) argue that companies empowered with advanced information technologies can collect huge amount of data on their customers and turn them into information for their strategic business purposes and actionable use. Rowley (2002) recognizes that CRM systems support all stages of the CRM approach. CRM applications gather and analyze customer data patterns, interpret customer behavior, develop predictive models, respond with timely and effective customized communications, and deliver product and service value to every individual customer (Chen and Popovich, 2003). CRM information and communication technologies can be classified into three distinct areas: collaborative CRM, operational CRM and analytical CRM (Greenberg, 2004). This categorization is meant to help better understand the integration process of the customer relationship management approach. Figure 8 illustrates Greenberg's (2004) CRM view representation.

5.1.1 COLLABORATIVE

According to Greenberg (2004), collaborative CRM represent the interaction and the distribution channels.

Reynolds (2002) describes collaborative CRM as the interfaces which facilitate the interaction between a company and its customers such as web/chat, e-mail. Collaborative CRM includes also the relational interfaces within the business itself or with the business partners such as agent broker, direct provider, intermediaries and partners. Companies can interact with its customers by means of different channels. Payne and Frow (2005) have categorized the many channel options into six categories: sales force (e.g., field account management, service, and personal representation); outlets (e.g., stores, and kiosks); telephony (e.g., traditional telephone, facsimile, telex, and call center contact); direct marketing (e.g., direct mail); e-commerce (e.g., e-mail, the Internet, and interactive digital television); and m-commerce (e.g., mobile telephony). Collaborative CRM involves any function that provides a point of interaction between the company and the customer. It aims

at facilitating interaction between customers and businesses and is the first and last contact with the customer.

The collaborative CRM represent the recourse for the company in the initiation phase of the CRM approach process and the completion phase. They represent an important segment of the CRM approach because they take the output of the approach and offer them into value-adding activities to customers (Payne and Frow, 2005).

5.1.2 OPERATIONAL

Customer data is collected through a whole range of touch points such as contact centre, contact management system, mail, fax, sales force, web, etc. The data then is stored and organized in a customer specific database, which is made available to all users who interact with the customer. Operational CRM are known also as front-office (Greenberg, 2004).

A typical operational CRM is the contact management, which involves front-office customer touch points such as sales, marketing and customer service. A contact management system can provide complete and comprehensive tracking of information relating to any contact with customers (Kotorov, 2002). The benefit of this type of CRM is to personalize the relationship with the customer, and to broaden the organizational response to the customer's needs (Xu and Walton, 2005).

5.1.3 ANALYTICAL

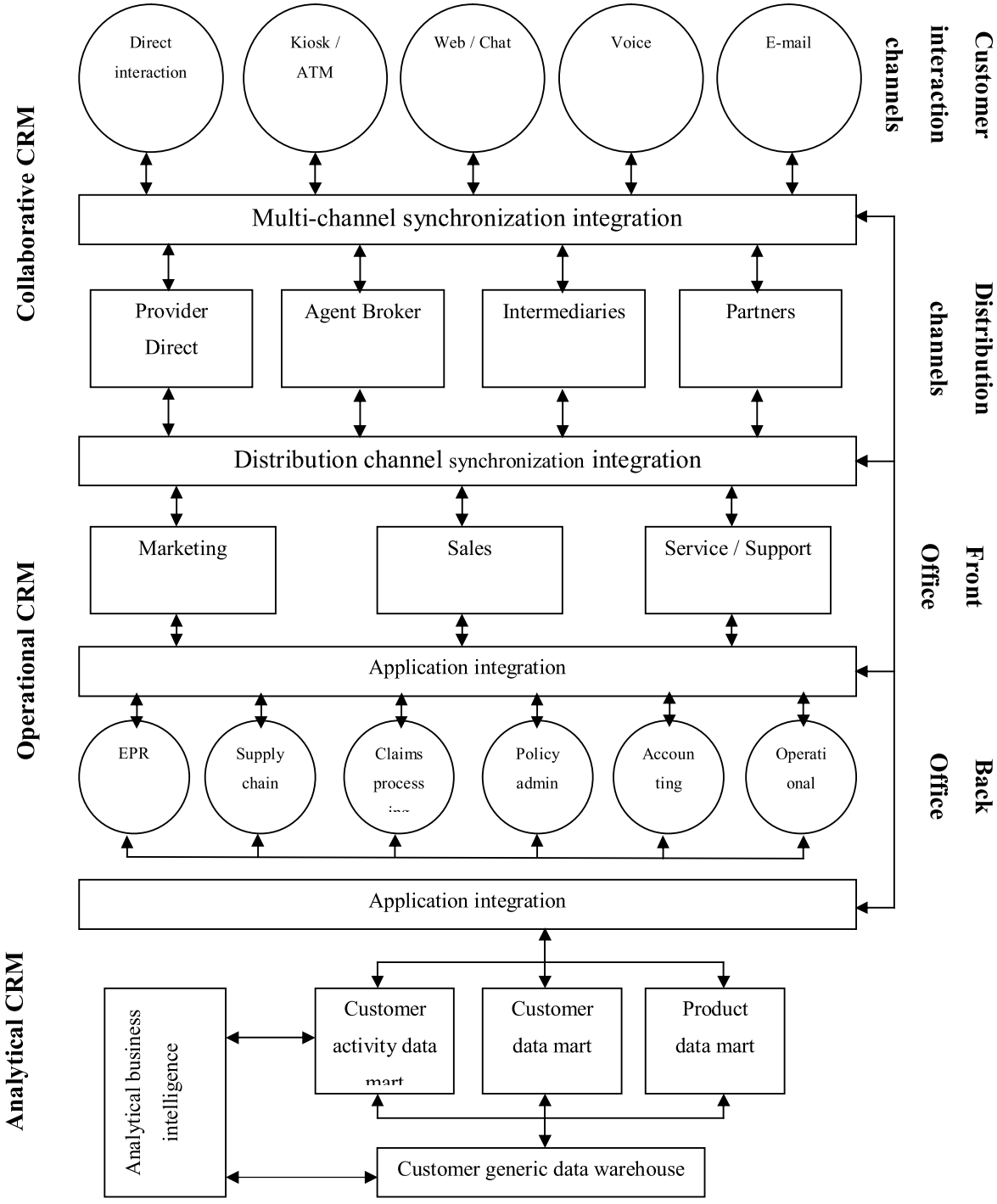
Referred as back-office by Greenberg (2004), analytical CRM involves the understanding of customer activities. It analyses, models and evaluates data stored in the data warehouse (Reynolds, 2002). Stored data in the contact centric database is analyzed through a range of analytical tools in order to generate customer profiles, identify behavior patterns, determine satisfaction level, and support customer segmentation. The information and knowledge acquired from the analytical CRM will help develop appropriate marketing and promotion strategies.

This type of CRM enables the 360 degree view of the customer (Kotorov, 2002). This type of application allows organizations to look for patterns in their customer data. Technologies supporting the analytical CRM system include CRM portals, data warehouses,

predictive and analytical engines (Eckerson and Watson, 2001); pattern discovery association rules, sequential patterns, clustering, classification and evaluation of customer value (Ahn et al., 2003). The outcome of the analysis, which is shared with front office and collaborative CRM, is that customers are more effectively segmented and offered products and services that better fit their buying profiles.

Xu and Walton (2005) argue that the CRM system, that have been implemented by many companies, are dominated by operational applications such as contact centers, sales and marketing solutions with limited customer knowledge gained from the current CRM application. They further state that the analytical power of CRM has not been adequately perceived by many organizations. The provision of analytical CRM solutions is limited to some large organizations. It is suggested that CRM systems should enhance not only an organization's ability to interact, attract and build one-to-one relationships with customers but also the ability to gain customer knowledge. Such a system should enable functionality for both existing and prospects customer knowledge provision. The system will not only provide a panoramic customer view through profiling but also generate customer behavior patterns and predict future actions.

Figure 8 The CRM view



Source: Greenberg (2004, p.263)

5.2 CRM ESSENTIAL

Initially referred to as a technological initiative to make call centers less expensive and more efficient, customer relationship management has grown in scope. During the early to mid 1990s, solutions became available that supported and also expanded the ability to consolidate data sources within departments that relied on the same customer data. CRM solutions with varying levels of automation were addressed by vendors. These solutions were to help choreograph information capture, information sharing and internal or customer communication.

The push towards better CRM technologies is a natural result of the search for businesses for greater productivity and efficiency in customer-facing operations like sales, marketing, customer service and support (Greenberg, 2004; Zablah et al., 2004). Essential to enhancing customer relationships, information and communications technologies play a significant role in the CRM approach (Day, 2000; Grant and Schlesinger, 1995; Pine et al., 1995; Thwaites and Lee, 1994). An integrated CRM system is extremely flexible. It can adjust customer needs throughout a product's life cycle, and it has the ability to analyze and actively monitor customer preferences. Therefore, one of the best competitive strategies is the successful utilization of information and communication technologies to effectively integrate business knowledge.

CRM system components include front-office applications that support sales, marketing and service. These front-office or customer interaction solutions will be supported by a customer data repository and back office applications that will help integrate and analyze the data (Jaychandran et al., 2005). The emphases of automating functions (sales, marketing and service) are on process optimization and efficient highly precise account management. Depicted hereafter are the essential components for a CRM approach.

5.2.1 SALES AUTOMATION

To face today's marketplace, companies are sentenced to concentrate more on their customers. To meet customers' requirements and expectations companies are seeking to automate their sales processes in conjunction with customers thus improving their course of action and consequently increasing revenues. Sales force automation (SFA) tools represent one of the key components of CRM systems (Morgan and Inks, 2001; Pulling et al., 2002).

Due to the information technologies important role in the attainment of customer centric orientation (Ryals and Payne, 2001), sales related technology gained and are still gaining attention believing that can increase revenues and cut costs of sales by reducing the time sales people spend on administrative tasks. Sales force automation (SFA) systems have become the backbone for many sales departments and/or organizations and can increase the mobility of the sales force by using the potential that the web offers.

Sales support will permit management of sales leads and provide competitor and customer information to the sales force and manage sales through multiple channels by tracking product availability and delivery (Jaychandran et al., 2005). In addition to those advantages, Sales Force Automation can answer back typical challenges within sales teams. Through automation, gaps like inefficiencies in tracking activities with customer and prospects; difficult or inefficient communication with managers on sales approach; time lost having to manually produce information for reports or status; inefficient assignment of leads; and several others can be made more efficient.

The origin of SFA can be traced back to the original personal computers adopted by salespeople in the early 1980's to perform basic transaction processes. Sales Force Automation (SFA) is a technique where computer hardware, software, and telecommunications devices are used to automate the sales force's everyday selling and/or administrative activities in order to make sales representatives' work more efficient (Morgan and Inks, 2001). The most common functions that a SFA provides are: contact management, order processing, information sharing, inventory monitoring and control, order tracking, customer management, sales forecast analysis and employee performance evaluation. These tools can be integrated into company-wide data management systems, which cover sales, marketing, and customer services (Morgan and Inks, 2001). Other tasks where SFA can be applied to are scheduling, mapping out sales routes, prospecting, making presentations, documenting buyer objections, retrieving product information, and configuring product specifications (Honeycutt et. al., 2005).

Sales force automation is very important and essential to the CRM approach for the reason that it is often identified as providing value to the organization by potentially increasing revenues. The reason behind is that a well defined sales process, the availability of shared knowledge and information, the accessibility of relevant employees to unified guest

data and to customer relationship details, and the automation of the basic tasks (sales team and territory planning, forecasting & sales analytics, lead management, account management, and opportunity management), present the opportunity and the capability to increase sales. Described below are the core categories of sales force automation.

5.2.1.1 SALES PROCESS OR ACTIVITY MANAGEMENT

Sales process or activity management tools include a number of sales activities that will guide sales personnel through each step of the sales process. Dalrymple et al. (2001) divided the selling process into three phases: the pre-transactional phase, the transactional phase, and the post transactional phase. In the first phase, actions are initiated prior to interaction with decision-makers. This step involves generation of leads and lead qualification and the organization of the sales strategy. Phase two is when actions are initiated while interacting with the customer. This phase consists of the approach step, needs discovery, presentation, handling objectives and the closing step. In this phase, sales personnel try to interact with the customer while focusing on the acquisition. The last phase of the sales process is the post-transactional phase in which post-transactional actions are performed. It is the customer management phase during which the company follow-up the customers and the servicing support.

Sales management tools enable the supervision of sales team by tracking, organizing and profiling sales personnel, teams and accounts and by evaluating sales force performance (Dyché, 2002). It enables the inventory management and does control sales through multiple sales channels. Other than providing customized offers to sales people, SFA provides sales force for cross/up selling opportunities.

5.2.1.2 CONTACT MANAGEMENT AND LEAD MANAGEMENT

Contact management is a function of the SFA. It permits the organization and the management of data regarding a company's customers and prospects. The data recorded consists of activities and interactions performed before, during and after the sales process, such as planned or accomplished calls or visits, and other related information concerning the individual (Greenberg, 2001). In the contact management tool, companies manage their offers concerning every contact. Such tools facilitate the personalization of the offer in order to embody the differentiation.

The lead management is often recognized as to the most important module of the sales force automation tool. The purpose of lead management (or opportunity management) is to provide the right leads with the right content at the right timer (Dyché, 2002). Lead management also enables tracking of customer account history and provides customer information and a generated next step to the sales representatives. Lead management can track prospect elements such product interests and budgets. It also enables competitive comparison providing sales personnel with information to emphasize on facilitating the interaction with the decision-maker (lead).

5.2.2 MARKETING AUTOMATION

The extension of the simple marketing databases in CRM's evolution is the basis for marketing automation, enterprise marketing automation (EMA) or enterprise marketing management (EMM). Marketing databases, created from customer data or purchased lists, are used by marketing departments to identify prospects and take action to generate opportunities the company could act to. Basic actions, when automated, have great potential for providing better-qualified customers, faster lead turnaround, and increased market penetration. Marketing support includes market planning, execution of campaigns, and measurement of campaign performance (Greenberg, 2001). Marketing automation replaces the broadcast of traditional marketing's methods; it relies on a two-way information flow and attempts to reach customers with appropriate information and tailored messages. This is achieved through marketing automation which automates the planning, execution and evaluation of targeted marketing initiatives designed to influence customer behavior. In addition to that, marketing automation include creating campaigns with targeted customers and prospects, control groups, waves of contact, and budget management. Marketing automation enables companies to design the combination of traditional and new channels of distribution and communication according to individual's needs. It customizes the company's communication to guests, analyzes responses to marketing campaigns, and automates routine activities such as providing promotional literature to personnel.

Marketing automation addresses marketing in all types, whether it is a direct marketing or target marketing (marketing segmentation or one-to-one marketing). To take advantage of the opportunities that marketing automation permit, companies began implementing many functionality and capabilities of EMA (e.g., consolidated marketing lists,

campaign management functionality, communication tracking, and early prospect conversion assessment capabilities). Table 4 shows the fundamental elements of EMA and EMM. There is no direct correlation between rows. EMM is a more strategic approach to campaigning, analyzing, and operations and is becoming a more excellent way of handling the customer-driven marketing in this era (Greenberg, 2004).

TABLE 4 EMA AND EMM

Enterprise Marketing Automation	Enterprise Marketing Management
Identification of the prospect	Online and offline planning and execution
Generation of the lead	Integrated planning calendars (for both internal and external resources)
Prospect and customer information capture	Planning resources, budgets, and overall departmental goals
Campaign planning	Multistep campaigns
Lead qualification	Segmentation and list management wizards
Distribution of leads to appropriate segments	Marketing event management
Campaign execution (such as promotions, event planning)	Automated response modeling (from sample segments)
Response management	Campaigns test tools
Refinement	Partner/affinity program management
Channel management (for example, joint marketing campaigns)	Message broker
	Central creative repository
	Internal/external workflow and approval structure, based on roles
	Synchronization engine
	Direct connection to existing data sources

SOURCE: GREENBERG, 2004, P.123

Some solutions focused on the campaign management, planning activity, and budgeting components while others provided significant architectures for connecting with and managing prospects. Following, we will describe the core solution and component of marketing automation, the campaign management.

5.2.2.1 CAMPAIGN MANAGEMENT

Campaign management tools were among the first functions that companies adopted and that due to the fact that most of organizations have their campaign structure and processes defined. With marketing automation tools, marketing teams can fully define the campaign structure, timeline, activities, and prospects lists facilitating the service proposal to the right customer, at the right time and via the right communication channel. With marketing

automation, companies are capable of having updated customer information, a mean for realizing effective marketing campaign (Xu, 2002).

The functionalities which characterize campaign management tools compose a closed-loop process (Dyché, 2002; Peelen, 2009) where the results from actual campaign are used to create the basis for the new upcoming campaign. The first function or step is the opportunity identification in which the company determines customers and contact information that are suitable to the selected segment for the campaign. The planning process is similar to the previous function, but concentrates more on the scheduling of the campaign. It also defines the channels via which the company should get in contact with the customer and plan the campaign execution. In the third step, companies manage the campaigns by developing many types for the campaign. It also manages the final list of customers to contact and define priority and exclusion rules. After launching the campaign, the company tries to optimize the numerous interactions with contacts during the fourth step of the campaign management, the customer interaction step. The organization tries to tie the connection initiated by the campaign message and seeks new inputs for the following ones. The last phase is the evaluation phase. This phase is to measure the effects of the campaign and see whether they were adequate with objectives. Results of the campaign are measured on ongoing bases enabling modification and adaptation to the current campaign.

The campaign management tool is used to get new customers and ensure the loyalty of established customers by providing continuous, permission-based, promotional communications, according to the customer's interests (Shaw and Taggart, 2000). The essential keys for the campaign management, alike to all CRM automation tools, are database management tools used to design and execute single-channel or multichannel campaign management. Those tools are a set of database, data extraction techniques and channels.

5.2.3 SERVICE AUTOMATION

Customer service and support function is considered as a core task to customer relationship management approach success. It can easily identify value in managing relationships since this department is continuously interacting with customers. By performing a continuous follow-up, companies several benefits can be achieved. By tracking, monitoring and measuring customer service, companies realize an improvement in the abandonment rate

(Xu, 2002). Tracking open issues, managing assignments based on experience and workload, tracking service level commitments, storing resolutions for use in future contacts or by less experienced reps, or gathering information for a return merchandise authorization are all examples of benefits that can be realized with customer service and support components of CRM (Mathena et al., 2009).

Service support is not a reactive phase to the sales function. The support is an ongoing process that accompanies the customer during the entire customer life cycle. It includes the components such as real-time insight, reporting and analytics; case management and scheduling; interaction and knowledge management; account and contact management; and proactive sales and support (Mathena et al., 2009). The automation of the support and service function should allow personnel to access data on all guest interactions with all functional areas, provide the personnel with knowledge-base solutions to commonly occurring problems, and also schedules and tracks service delivery. According to Meuter et al. (2000), service support automation will bring value to customer, not only by means of personnel support and service, but will help customer serve themselves by providing access to knowledge-base solutions.

Applicative CRM solutions (sales automation, marketing automation and service automation) are means to bring value to customer. This is achievable through consolidation of customer information and easier access to relevant knowledge. The success of the CRM approach relies on the extraction and the analysis conducted on available information (Peelen, 2006).

5.2.4 DATA REPOSITORY

Having lots of customer to manage, businesses will have difficulties sustaining the rising costs created by interactions among people (Linoff and Berry, 2002). A detailed profile of customers and their interactions will be an important resource for businesses wishing to explore customer data in order to discover customer knowledge and thus customer data should be inputted into a database (Aha et al., 1991).

Firms develop a central data bank in which all customer-related information is stored from the different data base of the different systems. This data repository provides a powerful corporate memory of customers. Stored data is collected from a variety of sources, and will

be used to examine patterns of behavior. It may comprise a data warehouse and related data marts and databases (Swift, 2001). Kotler (1992) has argued that marketers should build and use customer databases in order to keep track of what customers are buying and what they are interested in, thereby using this information to serve customers better. Programs to manage customers as strategic assets usually begin with the creation of a customer database (Schmittlein, 1995). This data can be used to strengthen the relationship and increase customer value over time (Grönroos, 1997).

Data marts contain one part of customized and/or summarized data that originates from the data warehouse (Imhoff et al., 2001). Data marts are tailored to meet specialized needs are support a particular group of users such as marketing or sales (Zikmund et al., 2003). With data marts, the business units get more support for their specific analytical requirements, which give them more flexibility, control and responsibility of the activities. CRM systems usually require a data warehouse and several data marts (Peelen, 2009).

The data warehouse is an extension of the database and is described as the heart of the CRM approach (Zikmund et al., 2003) with the purpose of assisting in decision making. A data warehouse is an integrated store of data, collected from a variety of internal or external sources to the organization. Therefore, data warehouse is a useful and accurate tool for assembling a business's dispersed heterogeneous data. Data sources might include information from call centers, the sales force, customer and market surveys, and full electronic point of sale data, geo-demographic data and competitive information (Ryals and Payne, 2001). All transactions and operational events that occur in the life of an organization are recorded into the data warehouse.

The reasons behind the development of data warehouses can be traced to the lack of operational systems in meeting the demand for management information and analysis. The processing load of reporting reduced the response time of the operational systems, while the database designs of such systems were not optimized for information analysis and reporting. Another gap of the operational systems was the reporting. The numerous operational systems across the company made company-wide reporting not supported, and the development of reports required writing specific computer programs which was slow and expensive. As a result, data warehouses were designed to support management information and analysis as well as integrating data from a range of different data sources.

As technology improved and data and requirements increased, data warehouses have evolved through several fundamental stages (Table 5).

TABLE 5 DATA WAREHOUSE EVOLUTION STAGES

Data Warehouse	Functional Evolution
Offline operational databases	Data warehouses are developed by simply copying the database of an operational system to an offline server where the processing load of reporting does not impact the performance of operational system
Offline data warehouse	Data warehouse are updated on a regular time cycle (e.g., daily, weekly) from the operational systems and the data is stored in an integrated reporting-oriented data structure
Real time data warehouse	Data warehouses are updated on a transaction or event basis, every time an operational system performs a transaction (e.g., a booking, a delivery)
Integrated data warehouse	Data warehouses are used to generate activity or transactions that are passed back into the operational systems for use in the daily activity of the organization

For CRM approaches to be effective, data from multiple sources needs to be integrated into a unified and accessible data warehouse (Greenberg, 2002; Kimball and Ross, 2002). Data warehouses play an important role in enabling companies to identify and target profitable customers, a critical component of relationship marketing (Insurance Systems Bulletin, 1993). It enhances end-users access to unified customer data and data on customer interaction with all functional areas and integrates customer information from different contact points, increasing data consistency.

Once the data warehouse system is founded, data mining technology can be used to transform hidden knowledge into manifest knowledge. But prior to the mining process data should be cleaned, and viewing the value quality of data is crucial.

5.2.5 DATA HYGIENE

Storing data in a data repository is for the purpose to assist in decision making. Yet, most of customer stored data are not fit for analytical database and for decision-making use (Peppers and Rogers, 2004). Now that data is stored, companies should guarantee the value of the specific data in terms of quality before passing to the analysis stage. The heterogeneous nature (e.g., different interaction channel) to the origin of captured data is behind many impurities in records (e.g., differences between databases, duplicate records, data entry errors, different formats…). Errors in data are to be expected and that a field error rate of 1-5% should be expected (Redman, 1995). The impurity in data leads to the necessity of correction

and elimination of bad records. The purpose of data hygiene is to improve the quality of stored data to make them valuable and useful for analysis. It may consist of a data model which defines the organization of customers' data.

Zikmund et al. (2003) identified five objectives that data should fulfill in order to an efficient decision making process: data must be up to date; accurate; secure; and easily available. While the Data Warehousing Institute identifies seven areas that characterize data quality: accuracy, integrity, consistency, completeness, validity, timeliness, and accessibility. Data audit is essential to guarantee clean reports generated from the data warehouse via data analytics. It is a process for a systemic review of the stored data for the detection and correction of corrupted or inaccurate records. A tool for identifying and correcting data is the data cleansing which is a rules-based software solution to providing good data that is bereft of duplicates, missing information, and invalid ranges according to Greenberg (2004, p.371).

There are four methods used to perform the data cleaning: correction, filter, detect and report, and prevent (Greenberg, 2004). Correction and filter are designed to fix defective data elements and records. They involve modifying, filling or deleting an incorrect data value or record to conform to the company standard. Executing this method is frequently automated and data quality tools are used to correct the defects. Detect and report method concerns the data with no or little value for the process. This method of cleaning involves finding and reporting the problem. This method does not clean data automatically, but leaves the decision to the personnel based on the resulting report. Prevent, the last method is the ideal solution for data cleaning. Preventing error is far cheaper and more efficient that having to find and correct the data (Chapman, 2005a). The company standardizes its collecting manner and means and applies a code for collecting data that will be updated as far as data being collected to keep track and evolution of needs (Chapman, 2005b).

Data hygiene increases organizational efficiency and profitability. Analyzing clean data can produce accurate results helping in the right decision making. As mentioned in Greenberg (2004, p.372) "companies that manage their data as a strategic resource and invest in its quality are already pulling ahead in terms of reputation and profitability from those that fail to do so" (Global Data Management Survey, PriceWaterHouseCoopers, 2001).

As cited earlier, data analytics comes after the cleaning phase of data. Data mining is the science of extraction meaningful information from the data warehouse (Witten and Frank,

2000). The purpose of data analytics is to provide valuable information and knowledge through analyzing the organization's data in order to make more effective decision making.

5.2.6 DATA ANALYTICS

Efficient management and quick retrieval of information is very important for knowledge driven decisions. With the extensive use of databases and the explosive growth in their sizes, organizations are faced with the problem of data excess. Effectively utilizing these massive volumes of data to come to a conclusion on how to make that data beneficial is becoming a major problem for all enterprises. Furthermore, implementing a successful CRM approach using a data warehouse involves data exploitation which takes two main forms: reporting and data visualization (Ryals and Payne, 2001).

Extraction, modification, measurement, identification, and reporting of information designed to be useful to the organization are possible through the use of analytics (Greenberg, 2004). CRM analytics are being used to make business decisions that impact the present and future of a company and its customers. When analyzing data, there are two types of analytics; descriptive and predictive. The latter type of analytics takes customer data and identifies customer segments or individuals and forecasts possible behaviors based on historic performance and other factors introduced into a model (Greenberg, 2004). Predictive analytics looks more into the future by creating forecasts, predictions, and possible models or scenarios. While the descriptive analytics is used to look and evaluate actions done, it depicts the data base. The descriptive analytics is an historic look at customer's behavior, organization's performance, or customer segment's habits (Greenberg, 2004).

Data analytics (data mining and knowledge discovery) techniques have been applied to several areas including market analysis and decision support (Yen and Chen, 1996). Such tools can be found in general data-mining packages, query tools, and in OLAP tools. The tools used in data mining are used for predicting future behavior and trends and automated extraction of unknown patterns and for descriptive purpose.

Data mining has been defined in numerous ways. It is known to its usefulness in uncovering hidden trends or yielding previously unknown insight about the nature of a firm's customers. Berry and Linoff (2000) define data mining as "the process of exploration and

analysis, by automatic or semiautomatic means, of large quantities of data in order to discover meaningful patterns and rules".

Berry and Linoff (2011) made a useful distinction between data warehousing and data mining: 'data warehousing provides the enterprise with a memory… data mining provides the enterprise with intelligence'. They emphasized four stages of the data mining process which focus on using the results of data mining for competitive advantage, as well as exploiting advanced techniques. These steps are (1) identifying business problems and areas where analyzing data can provide value, (2) transform data into actionable information using data mining techniques, (3) act on the information, and (4) measure the results of your effort in order to provide insight into how to exploit the data.

Data mining is the process of exploring masses of data in order to look for patterns, correlations or irregularities. Data mining enables the analysis of large quantities of data to discover meaningful patterns and relationships (Groth, 2000; Peacok, 1998). It is a powerful tool to analyze data and to extract hidden predictive information from data repositories. Data mining tools include clustering techniques (identifying groups of similar behaviors or profiles), conjoint analysis (identifying preferences), regression analysis (exploring patterns of relationships between variables) and neural networks analysis (which are used to uncover highly complex relationships between and within combinations of variables).

CRM essential meets the CRM process. It manages the concern with identification and relational, capture, analysis, collation and use of customer data and information from all customer contact points to generate customer insight and appropriate marketing responses. This kind of awareness and knowledge is beneficial for building customer relationships (Day, 2000; Goldenberg, 1999; Stevens, 1999).

The data repository provides a corporate memory of customers; analytics and automation solutions support the many activities involved in the CRM process (Greenberg, 2001). Automation solutions provide functionalities for CRM personnel and support many activities involved in the sales, marketing, and service and support processes. They also empower the entire CRM process (relational and identification; capture; integration and analysis; share and access; and use) and create value both internally, for the organization, and externally, for the customers (Day, 2000; Fusaro, 1999; Peppers et al., 1999; Seligman, 2000).

The CRM essential provides an appropriate infrastructure for the data, information, and knowledge concept. The basic compound for knowledge is data which is the measures and representations of the world around the organization, presented as external signals and picked up by various channels. Information is produced by assigning meaning to data; it is a way of packaging data for use. Knowledge is the subjective interpretation of information; it is the understanding that the company has acquired from information and a way of manipulating information and data to get certain things done, and standards for the acquiring of more data, and information. The outcomes of the process of converting data into knowledge can be used to create personalized marketing plans that target each defined customer. Intelligence can also be utilized to develop new products, new services and design communication programs that attract, reward and hence retains customers (Brown, 2000; Colgate and Danaher, 2000; Day, 2000; Fusaro, 1999; Puschmann and Rainer, 2001; Sodano, 2000).

6 HOSTELRY CRM

Generally speaking, it is no doubt that customer relationship is one of the most important factors to construct the core of competitiveness, especially in service industries for running business forever (Chang et al., 2009).

Lin and Su (2003) state that, in high quality hotel enterprises application of CRM is a great opportunity to increase customer value and provides a way to systematically attract, acquire and retain customers. Cuthbertson and Laine (2004, p.303) state that CRM has the potential to help strengthen loyalty and build profitability, though it can be very expensive to implement. CRM techniques allow the retailer to focus on developing customer profitability, rather that aggregate profitability. This allows for a more targeted use of marketing and operational resources. Furthermore, loyal and profitable customer activity can be tracked to facilitate continually relevant retail development. Thus, CRM activities can be very effective in enhancing customer loyalty for profit.

Hospitality is an information-intensive business where hotels gather guest information through their different information systems and through an ongoing basis. Managing and leveraging the data collected from the hotel's guest to enable the organization to improve the guest experience is the priority of many hotels mentioned Clyde Reese Jr., the director of

information technology of the Suburban Lodges of America, in leveraging the importance of CRM in the hospitality sector.

The CRM is an enterprise-wide commitment encompassing all elements of the organization. It relies basically on Information and Communication technologies (ICT). To foster loyalty and maximize long-term profits an increasing number of hotels are developing a customer relationship management approach and investing in supporting CRM technologies (Noone et al., 2003; Terrero, 2002). Furthermore, the CRM permits the hotel to have superiority over competitors while developing strong relationships, maximizing profitability and customer satisfaction.

According to Haley and Watson (2002), CRM is the hot new technology tool for hotel companies towards performance. It helps in optimizing occupancy, increase productivity, satisfaction and loyalty (Cuddihy, 2005) leading to increased hotel profitability (Siguaw and Enz, 1999). Michael Dalton (2009), the senior vice president of lodging systems of the Marriott Hotel, supported that when he highlighted the benefits a CRM approach can have on the hotel. The CRM enables the hotel to capture, remember, and deliver all guest preferences to each service deliver point of contact. It responds also to the expectations of the global customer who expects consistent services at any property around the globe (in Adams, 2001). The use of the CRM application to increase customer loyalty and customer retention by personalizing a customer's stay has yielded in proof. The Rittenhouse's vice president and general manager, David Benton, said that the key to his hotel success is the personalized service that honors each guest. This property has earned the "AAA Five Diamond Award" for 14 consecutive years and has merited a position on the Conde' Nast Gold List as one of the best places to stay in the world (Hotel News Resources, 2005).

Other than it is an ongoing process, the application of the customer relationship management approach process, in the hospitality sector, accompanies the "guest cycle" (Kasavana and Brooks, 2005). The guest cycle is a repeatable sequence of activities that each guest, interacting with the hotel, passes by. It usually starts when the customer communicates with the hotel for an inquiry, and it ends temporarily, when the customer considers the service complete.

6.1 CRM PROCESS AND THE GUEST CYCLE

During the guest cycle, various hotel personnel try to meet the customer's needs and expectations at each point. They aim to increase customer satisfaction and customer loyalty by offering a more responsive and customized service to each guest. Guests can interact with the hotel in a variety of different places and ways (Cline and Warner, 1999).

Hotel personnel have access to customer's information through different means, from front office till back office through all touch points. A CRM approach enables the hotel to create and extract data from customer activity database; use this data to decide about which guest to target and how to target in order to build relationships with them; develop personalized guest offers and services; manage all hotel channels for enabling efficient share of guest knowledge across the entire organization, for the aim that guests can get tailored and consistent service at anytime, anyplace, anywhere, and through any platform. The customer relationship management approach accompanies all guests' interactions, and that means during pre-arrival, arrival, stay/occupancy, and departure phases. Those phases constitute the guest cycle (Kasavana and Brooks, 2005). At each of these phases or interaction points, a number of information loops are generated representing the steps of the customer relationship management process.

1- The pre-arrival stage, which initiates the guest cycle, is where marketing communication, account management and reservation tasks are done. The hotel tries to create an interaction with its guests and customers. During this phase, the customer can provide valuable information enhancing the hotel's service and eventually creating a relationship with this customer. As we have mentioned earlier that the guest cycle ends temporarily when the customer considers the service complete, the hotel should produce the guest cycle by staying relational with customers. During this stage, the hotel should ensure the guest recognition and the same treatment no matter what channel used. Throughout this stage, maintaining an updated data repository is an essential segment.

2- At the arrival stage, registration process takes place. It is the first face-to-face interaction with the guest. The guest recognition and identification is a crucial element for a good first impression. Information capture, integration, access and use of guests are the essence for this stage.

During the arrival stage, the hotel establishes the check-in of the guest to the event, resulting in the creation of a guest history record.

While the spirit of hospitality is to value each guest and deliver an excellent service to all of them, some guests are more valuable than others, and thus the hotel needs to invest more in such guests and less in others. The analysis part of the CRM process brings help in ranking and distinguishing guests and consequently services.

3- At the occupancy stage, or the event stage, the front office department coordinates guest's services in a timely and accurate manner. With concern for delivering quality services to guests, maximizing potential sales in all profit centers of the hotel is important. Those in-house sales can be in the form of future reservations, in-house dining, room service, lounge and entertainment patronage, gift shop purchases, and all the like linked to other departments in the hotel will assist in producing profits. The use of CRM technologies in promoting these sales and other services plays a key role in optimizing the sales opportunities available (Domke-Damonte and Levsen, 2002; Watson et al., 1996).

   During the occupancy stage, the front office represents an information source and a request center for guests and hotel employees. Therefore, the front office is the resource for the CRM approach. The front office is playing an important role for the CRM approach in the hotel; the nature of the front office has changed from taking an order to generating an order (Bardi, 2007, 2010).

4- At the departure stage, or the check-out stage and the post event stage, a guest history record is finalized and complaints and compliments are treated. In this stage, the CRM tools add value and yield to more efficient services (Chathoth, 2007). Through effective CRM tools, the departure stage is facilitated and transaction costs related to guest services and checkout systems are reduced. Front office, housekeeping, and food and beverage operations are more efficient and effective when they are technologically oriented (Frumkin, 2002).

Although numerous research link IT to service management and transaction costs in hotels (e.g., Barrington and Olsen, 1987; Chathoth, 2007; Olsen and Connolly, 2000; Olsen et

al., 1998); lots of hotels lack in converting their technologies into a source of advantage. The major reason of such a gap is the deficiency in the inter-departmental interactions, the data and knowledge integration and sharing. A redesign of customer data across the organization and a customer centric ICT integration and infrastructure is essential to the CRM approach (Sigala, 2003).

6.2 CRM INTERDEPARTMENTAL INTEGRATION

The success of customer relationship management approach heavily depends on the collection and analysis of guest information that are used for developing personalized offers. At each touch point, the hotel interacts with the customer, and guest information can be collected through different channels and information systems. But the main issue is that each application has its own database, creating isolated knowledge, on each customer's behavior and preferences, which is unshared and inaccessible (Minghetti, 2003). And in order to yield in important results, the hotel needs to embed ICT management customer information and run a decision-making process which consists of the three board phases in parallel, namely, information acquisition, sharing and utilization (Tiwana, 2001).

Customer Relationship Management approach plays an essential role in delivering hospitality to guests. Sigala (2005) mentioned that in order to succeed, a hotel should integrate CRM in hotel operations. Data warehouses, data hygiene and data mining are the foundation of such an approach, and represent the analysis part. They set up the CRM activity providing the required information and knowledge. However, to achieve the analysis part of the CRM, it is essential to integrate the different action tools such as front office systems.

In the hotel environment, the measure of excellence always comes down to a one-to-one interaction with the guest. The CRM is a crucial part of servicing that interaction, since it delivers all the information and knowledge the hotel knows about the customer to the employee, in a manner that supports the interaction.

The CRM approach is the center of the hotel, and interacts with all departments of the hotel, including front office, marketing and sales, housekeeping, food and beverage, banquet, controller, maintenance, security and human resources. All of these departments are interrelated in providing guest services. Through the CRM tools, every department becomes more knowledgeable and active for gathering and distributing information (Bardi, 2010).

Departments rely on the CRM to provide detailed data on guests and customers, thus all personnel must make every effort to keep the database current and accurate. Hereafter, we will mention some examples of the interdepartmental interactions.

An example of the relationship between the front-office and the marketing and sales departments is that the latter relies on the front office to provide data and to do the in-house sales. The marketing and sales department uses guest history to activities like targeting marketing campaigns and developing promotions (Bardi, 2010). Front office and housekeeping share the information about the room status and the availability of rooms for guest occupancy.

6.2.1 CRM HOTEL TOOLS

Guests get in touch with the hotel, with single departments or functions in a variety of different places and ways (Cline and Warner, 1999). This means, that a hotel has access to customers' information by different means enabling the same service. The hotel has a vast choice of tools managing customer relationships. They vary between functions, but are essentially dedicated to the actionable part of the CRM. A computer-based hotel information system is commonly called a Property Management System (PMS) (Bardi, 2010).

In this section, we will list the different systems that a hotel can use in managing customer relationships. The CRM approach depends and is linked to the tools that allow management to increase guest satisfaction and to access informational data. Each software packages offers numerous features and modules. CRM software on the market includes the automation of the three essential activities for the CRM (sales, marketing and services) and represents the ability to interface with data repository. The CRM approach tools are organized around the functions needed to assist in delivering service to the guest.

Although the components of a PMS may vary, the term PMS is generally used to describe the set of computer programs that directly relate to front office and back office activities, and thus mainly related to customers.

Back-Office: the back office components are the repository in which data guests are stored and all functions or packages with such as hygiene. Different store components can be

used in combination. We can use the file systems which are used for temporary storage. We can also use the databases and data-warehouses to administer storage and access.

Reservation Module: A reservation module or central reservation system enables the hotel to process room requests and generate timely and accurate rooms, revenue, and forecasting reports.

Room management module: A room management module or room management system maintains up-to-date information regarding the status of rooms, assists in the assignment of rooms during registration, and helps coordinate many guest services such as housekeeping and food and beverage.

In room modules: we can find many modules, packages or solutions that manage the room, such as: telephone call accounting system, electronic locking system, energy management system, in-room TV system, in-room beverage service system, guest-operated devices and auxiliary guest service devices.

Sales and catering applications including sales force automation, food and beverage system, banqueting system, and marketing and sales system. They enable a direct management of the guests' service and offers.

Yield management system or revenue management system: it is a set of demand-forecasting techniques used to determine whether prices should be raised or lowered and whether a reservation request should be accepted or rejected in order maximize revenue.

Adding to those tools, we can find activity scheduling system, hospitality accounting applications, guest accounting module, and point-of-sales interfaces.

The best CRM approach solution for the hospitality industry is a result of integrating a number of components including hardware, networking and various software products. The application of a CRM approach requires easy access to significant and analyzed information. The integration of data from every interaction point and the use of data-warehousing and data-mining tools facilitate the management of customer relationships in the hospitality (Cline and Warner, 1999; Minghetti, 2003; Olsen and Connoly, 2000) and will enable the hotel to identify and recognize each customer (Robledo, 1999). Integrating systems ensures that all the hardware, software and networking components of the hotel work in tandem

without glitches guaranteeing that all customers' transactions are processed in a real-time environment with no time lags and latency. Sigala et al. (2001) argued the need to integrate yield management, customer databases, corporate and distribution systems for a better customer lifetime value and better distribution channel. Through system integration, hospitality enterprises at different locations can be coordinated to work through a unified system. The spread of customer knowledge throughout the hotel properties allows staff to accommodate and treat guests based on their preferences resulting in a customer satisfaction and loyalty enhancement (Sveiby, 2000; Wells et al., 1999).

6.2.2 HOTEL TOOLS VENDORS

In this section, we will list some of the hospitality tools vendors. Some vendors are specialized in software solutions; others in infrastructure and devices; and others in infrastructure, devices and software.

- Agilysys, Inc. Hospitality Solutions
- AltiusPAR
- Amadeus IT Group SA
- Brilliant Hotelsoftware, Inc.
- Cenium
- Centrada Solutions, LLC
- CMS Hospitality
- Comtrol Corporation
- Galaxy Hotel Systems
- Hotel Concepts
- Image Technology Systems
- InnPoints Worldwide
- innRoad, Inc.
- IQware, Inc.
- Megasys Hospitality Systems
- MICROS-Fidelio
- Multi-Systems, Inc.
- NORTHWIND-Maestro Property Management Systems
- PAR Springer-Miller Systems

- ResortSuite (Enablez Inc.)
- Skyware Hospitality Solutions
- SoftBrands, an Infor Affiliate
- SoftHotel, Inc.
- WebRezPro Property Management System

The "Understanding the Customer Relationship Management" section consisted in presenting the CRM approach and its roots. We examined the Information Technology and Marketing roots. Then, we have answered the research objective concerning to delineate the CRM Approach. It is an organization-wide ongoing process providing a systemic approach to aligning business processes, technologies, and the customer. After defining the CRM approach in the research, we have presented the link with ICT and to conclude, we have presented the CRM Approach in Hotels.

In the next section, we will evoke the second part of the research title, which is the Business Value.

SECTION II BUSINESS VALUE THEORETICAL AND CONCEPTUAL FOUNDATIONS

During the last few decades, organizations have made immense investments in IT. The implications of these investments for productivity have been widely discussed in business and academic communities since Solow (1987), the American economist, questioned their benefits (Horzella, 2005). Solow (1987) claims that the presence of computers can be noticed everywhere, except in the productivity statistics.

The history of numerous failed and disappointing information technology investments in work organizations has been richly documented (Willcocks and Lester, 1999). Even with some success stories, research points to further analysis being needed of the factors which differentiate firms with high returns to IT from low performers (Brynjolfsson and Hitt, 1996).

IT investment is established as a high-risk, hidden-cost business, with a variety of factors, including the size and complexity of the project, the "newness" of the technology, the degree of "structuredness" in the project, and major human and cultural factors compounding risks (Willcocks and Lester, 1996; Willcocks and Margetts, 1993). Alongside, indeed we would argue contributing to, the performance issues surrounding IT is accumulated evidence of problems in IT evaluation, together with a history of general indifferent organizational practice in the area (i.e., Farbey et al, 1992; Strassmannn, 1990, 1997).

1 INFORMATION SYSTEMS BUSINESS VALUE

Assessing the business value and organizational impact of IT has been a major concern of information systems (IS) research. It has been the subject of intense interest since the early 1990s. The argument behind such concern is that IS evaluation enables organizations to effectively manage their IS investments by enhancing organizational learning and monitoring systems business performance (Farbey et al., 1999; Irani and Love, 2001; Smithson and Hirschheim, 1998). But before assessing value, one has to clearly define

it (Bannister and Remenyi, 2000). Without a clear definition of the business value concept, evaluation is unlikely to contribute to its aims.

Many authors have discussed the notion of IT/IS business value in detail, citing many definitions (e.g., Devaraj and Kohli, 2003; Hitt and Brynjolfsson, 1996; Kriebel and Kauffmanm, 1988; Larsen, 2003; Melville et al., 2004). Mainly, IT business value has to do with the organizational performance impacts of IT, including productivity enhancement, profitability improvement, cost reduction, competitive advantage and other measures of performance. Synthesizing IT business value research, Melville el al. (2004) defined "IT business value as the organizational performance impacts of information technology at both the intermediate process level and the organization-wide level, and comprising both efficiency impacts and competitive impacts". In our thesis, we will be based on this definition to further depict the business value of information technology/systems.

In conjunction with the inevitable investments in the IS/IT during the last many years, the uncertainty and concern about their productivity impact in work organizations is still present. It has been highlighted that much debate whether or not investment in IT provides improvements in productivity and business efficiency. While organizations have increased investments in IT in order to improve organizational performance, findings from earlier IT/IS productivity studies have been inconclusive despite the fact that several recent firm-level empirical studies have found a positive relationship between IT/IS investments and organizational performance. Many studies showed no correlation between IT investments and productivity growth (Dedrick et al., 2003). Stanley (2002) considers that IT investments, which amount of $130 billion for the years 2000 and 2001, are a waste.

Scholars and practitioners lack conclusive evidence that the high levels of spending on IT improve the productivity of organizations. This evidence has lead to the term "IT Productivity Paradox". Early studies representing this theme were by Roach (1986), Loveman (1994), and Landauer (1995). The many research studies show up the failure to identify IS/IT benefits and productivity. Some researchers did not find any link between IT investments and firm performance, while others found that IT spending is negatively correlated to productivity. At the same time, (Cron and Sobol, 1983) found that the remarkably profitable or unprofitable firms are characterized by excessive information technologies investment. Facing such disparity in findings, it is impossible to make a

sweeping assumption about the business value of IT especially because the studies questioned diverse firms from different sectors and different sizes. Table 6 represents some of the principal research studies on the productivity of Information Technology.

TABLE 6 SUMMARY OF STUDIES ON IT PRODUCTIVITY

Author	Independent Variables	Dependent Variables	Key Results and Findings
Lucas, 1975	IT investment	Firm performance	IT investment was not related to firm performance
Cron and Sobol, 1983	Computerization	ROI[2], ROA[3]	Inconclusive (either positive or negative)
Stabell and Forsund, 1983	Expenditure on IT, number of applications	Total labor costs and profits	No significant relationship
Turner, 1985	IT expenses, use	Operation income/total assets	No significant relationship
Bender, 1986	IT expenses/total expenses	Premium income/Total expenses	15 to 25% as optimum IT expense/total expense
Osterman, 1986	IT investment	Information worker productivity	No significant relationship
Franke, 1987	IT investment	Capital productivity, profitability	Significant negative relationship
Roach, 1987	IT investment	Service productivity	No significant relationship
Banker and Kauffman , 1988	ATM investment	Branch performance	IT investment was not related with increased business value but related to protected market base
Baily and Chakrabarti, 1988	IT spending	Productivity	No significant relationship

[2] Return on Investment

[3] Return on Assets

Harris and Katz, 1988	IT expense/total expenses	Premium income/total expenses	Significant positive relationship
Loveman, 1994	IT expenses	Firm performance	No significant relationship
Floyd and Wooldridge, 1990	Product IT and Process IT	ROA	Significant relationship between product IT and firm performance
Morrison and Berndt, 1990	IT spending	Productivity	No significant relationship
Strassmann, 1990	IT investment	Productivity	No significant relationship
Harris and Katz, 1991	IT expenses/operating expenses	Premium income/operating expenses	Significant positive relationship
Berndt and Morrison, 1995	IT investment	Productivity	Significant negative relationship
Weill, 1992	IT expenditure/total sales	ROA, sales growth, labor productivity	No relationship between IT investment and firm performance. Transactional IT was related with firm performance.
Brynjolfsson and Hitt, 1993	IT investment	Output and productivity	Significant positive relationship
Dos Santos et al., 1993	IT investment	Firm value	Inconclusive (either positive or negative)
Hitt and Brynjolfsson, 1994	IT investment	Productivity, business performance, consumer value	IT investment related with firm productivity and consumer value, but not related with business performance
Barua et al., 1995	IT purchases	Operational level, market share, ROA	Significant positive relationship between IT purchases and operational level
Lichtenberg, 1993	IT spending	Net return on IT investment	Significant positive relationship
Mukhopadhyay et al., 1995	IT capital	Operational performance	Significant positive relationship

Hitt and Brynjolfsson, 1996	IT investment	ROA, ROE[4]	Inconclusive and inconsistent results
Rai et al., 1997	IT spending	Value, sales, ROA, ROE, labor productivity, administrative productivity	Significant positive relationship, except a negative relationship between IT and administrative productivity
Shin, 1997	IT Spending	Coordination costs, output	Significant positive relationship (lower coordination costs, and increased outputs)
Tam, 1998	IT investment	Total return to shareholders, market capitalization	Inconclusive and inconsistent results
Bharadwaj et al., 1999	Computerization	Tobin's q	Significant positive relationship
Brynjolfsson et al., 2000, 2002	Computerization	Market valuation	Significant positive relationship
Chatterjee et al., (2001)	IT investments	Firm value	Positive relationship but not significant
Greenan et al. (2001)	Computerization	Firm performance	Significant positive relationship
Brynjolfsson and Hitt (2003)	Computerization	Productivity, output growth	Significant positive relationship
Sigala (2003)	Computerization	Productivity of hotel	Significant Positive Relationship

Many researchers have empirically investigated the link between IT (investment and utilization) and firm performance. Bakos (1987) note that the impact of IT/IS on business value may be analyzed at many different levels. Reported in the previous table, we can notice that some studies analyzed the impact of IT on firm performance regardless of industry sectors, while others have focused on a specific sector.

[4] Return on Equity

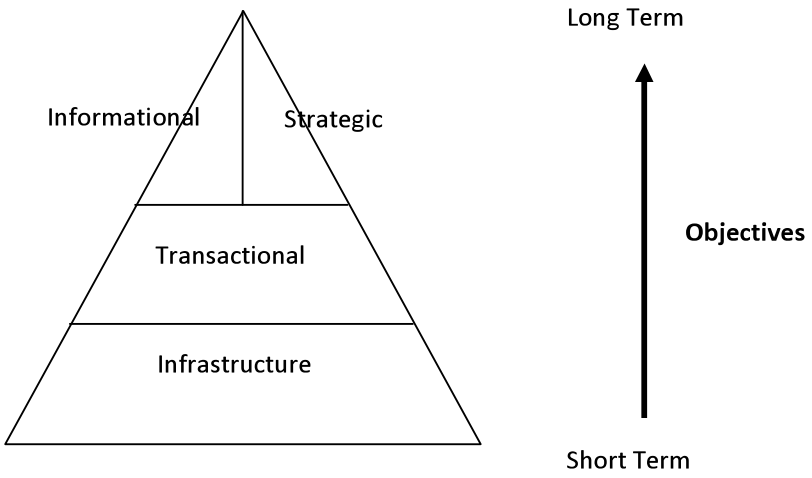
In general, the IT business value studies can be grouped into two research streams. The first category attempts to prove a direct link between IT investments and measures of organizational performance. Recapitulating the studies corresponding to that scope, we can say that they have failed to demonstrate a homogenous direct link between IT investment and organizational performance. The findings are ranging from a significant negative relationship (Berndt and Morrison, 1995; Franke, 1987), to a non significant relationship (Strassmann, 1990; Tam, 1998), to a mix relationship (Cron and Sobol, 1983; Weill, 1992), to a significant positive relationship (Lichtenberg, 1993; Mukhopadhyay et al., 1995). The unconvincing results and the continuously increasing IT investment by firms have called to another approach. Thus the second research category attempts to establish a link between IT investment and organizational performance through intermediate process measures.

1.1 IT INVESTMENTS

Nowadays, the debate on whether companies should invest or not in information technologies is no longer valid. Bharadwaj et al. (1993) emphasize the critical aspect of investing in present and new resources to the intensification of the organization's competing position. Enhancing and investing in present and new resources can guarantee the organization its continuous advantage in the dynamic market environment. Companies invest in new systems or invest in ways to maximize the benefits of systems already in use in order to better manage information leading to an increase in productivity, profitability and market share.

The finality of the investing in information systems differs from a company to another. Some aims a more technological infrastructure while other refers to the IS/IT investment as a strategically one. Weill and Lucas (1993) classified IS/IT investment into four different categories (Figure 9).

Figure 9 IS/IT Investment Typologies



Source: Weill and Lucas (1993)

As we can see, figure 9 shows that the infrastructure investment is the base of the IS/IT typologies. Such kinds of investment are to ameliorate the quality of the information systems of the company. The resulting is in software, hardware and telecommunication, and the skills needed to work with the new systems. The infrastructure offers the platform required for more long-term IS/IT investments. The next level of investment will be the transactional investment. The main purpose of transactional investments is to provide the organization with the essential support in its daily transactions and tasks (e.g., order management, stock inventory, accounting, payroll…). The last category in Weill and Lucas's classification are the investment in informational or strategic information systems. Those systems are based on both previous types of IS/IT investments. The goal of such information systems is whether to assist in decision making or to help in attaining a competitive advantage.

As we can see, portrayed in figure 9, organizations invest in information systems depending on their objectives. Infrastructure IS systems are the basis for long term informational and strategic information systems.

Even though the numerous reasons for investing in information systems and the augmenting vital role of such systems for enterprises are undeniable, catching their

productivity remains a major question. In the next section, we will discuss the IT productivity paradox.

1.2 IT PRODUCTIVITY

The inconclusive results have raised a serious "IT productivity paradox" for both researchers and practitioners (Baily and Gordon, 1988; Brynjolfsson, 1993). Organizations are increasingly investing in IT for all purposes (e.g., strategic and operational) yet, research has failed to produce consistent evidence of on such investment. Interestingly, the IT productivity paradox is rarely related in the literature to a sector and firm-specific productivity rises (Brynjolfsson and Hitt, 1993; Loveman, 1994; Weill, 1991).

Researchers have proposed a number of explanations for this productivity paradox (e.g., Bakos, 1987; Brynjolfsson, 1993; Kauffman and Weill, 1989; Kriebel, 1989). Brynjolfsson (1993) suggests four explanations for the seeming IT productivity paradox. The first is measurement errors. He concludes from a close examination of the data behind the studies of IT performance at national and sector levels that mismeasurement is at the core of the IT productivity paradox. A second explanation is timing lags due to learning and adjustment. Benefits from IT can take several years to show through in significant financial terms, a point made by others when arguing for newer ways of evaluating IS/IT performance at the organizational level (Keen, 1991; Strassmannn, 1990). A third possible explanation is that of redistribution. IT may be beneficial to individual firms but unproductive from the standpoint of the industry, or the economy as a whole. Brynjolfsson suggests that the redistribution hypothesis would not explain any shortfall in IT productivity at the firm level. To add to his analysis, one can note that in several sectors, for example banking and financial services, firms seemingly compete by larger spending on IT-based systems that are, in practice, increasingly becoming minimum entry requirements for the sector, and commodities rather than differentiators of competitive performance. A fourth explanation is that IT/IS is not really productive at the firm level. Brynjolfsson appears to discount these possibilities citing a lack of evidence either way, though here he seems to be restricting himself to the economics literature. Recent evidence in the IT/IS evaluation literature suggests more evidence showing poor evaluation practice than Brynjolfsson has been willing to credit, in example Ballantine et al. 1999; Hirschheim and Smithson, 1999 and Walsham, 1999. Among the most compelling and widely accepted explanations are two that reveal the limitation of

the empirical studies and call for alternative research approaches. The first explanation points out problems related to the measurement and tracing of IT impacts using a single productivity measure. It calls for approaches that measure and trace IT impact throughout the intermediate value-added processes. The second explanation focuses on the lack of attention of the existing research to the importance of organizational context. It calls for approaches that take into account both IT investment and the specific context in which IT is used.

1.3 INDIRECT LINK

Studies that attempt to establish a direct link between IT investment and business value have used traditional measures of productivity. The traditional measures of productivity, while important, are not necessarily appropriate measures of IT business value and impact (Baily and Chakrabarti, 1988; Loveman, 1994; Strassmann, 1990). IT investment and use affect various aspects of the organization and produce a broad spectrum of intermediate benefits such as improved production output, quality, customer service and customer and supplier relationships (Brynjolfsson and Hitt, 1996). Traditional measures of productivity fail to capture these intermediate benefits and this underestimate the value of IT.

Mixed empirical results call for better theories and improved research approaches. Soh and Markus (1995) declare that a productive research approach would be moving from the question of whether IT creates value to how, when and why benefits occur or fail to do so. The work reported here shows how complex it is to identify IT impacts and effects, and points to the need to examine a range of correlated factors before rushing to judgment. It also serves to highlight how macroeconomic studies of IT productivity can mislead, and how microeconomic studies of the ways in which individual organizations and markets behave are altogether more helpful.

2 IS/IT BUSINESS VALUE FRAMEWORKS

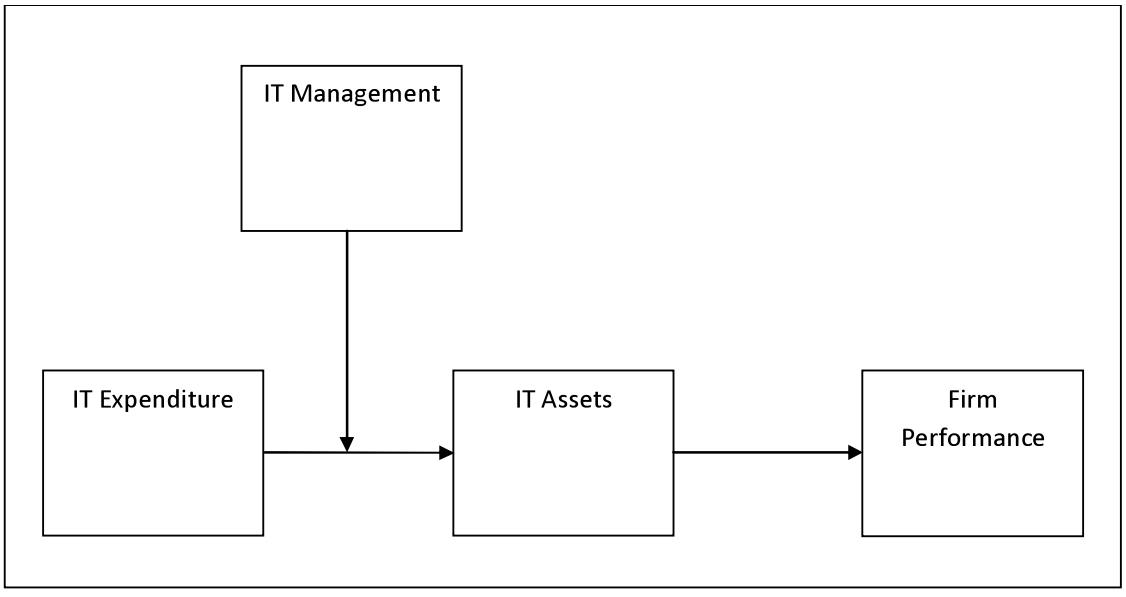
Recognizing the measurement and modeling problems cited in the previous section, researchers have proposed the use of multi-faceted measures of IT impact (Barua et al., 1995; Mahmood and Soon, 1991; Markus and Soh, 1993; Melville et al., 2004; Mooney et al., 1995; Sethi and King, 1994; Soh and Markus, 1995). Several researchers have proposed alternative models that link IT investment to organizational performance through some

intermediate processes. Firms derive IT business value through its impact on intermediate business processes, it is where the first order effects exist according to Barua et al. (1995). Theses process-oriented models trace the path or chain of activities IT investment takes in the way to reaching firm-level performance. A brief review of some frameworks and models is provided below.

2.1 IT ASSETS

Markus and Soh (1993) propose an "IT Assets" model showed hereafter in Figure 10. Based on Weill's (1992) "conversion effectiveness", they posit an intermediate outcome between IT expenditure and firm performance; the "IT Assets". The conversion in their model is that IT assets, if attained, will help ensure firm performance improvement. Their model involves two sub-processes. The first process explains how IT expenditure is converted into appropriate IT assets including IT infrastructure (including soft infrastructure) and a portfolio of applications. In this sub-process, Markus and Soh underline the role of IT management processes in the conversion success. The second process explains how IT assets do or do not yield improved organizational performance.

Figure 10 IT Assets (source: Markus and Soh, 1993)



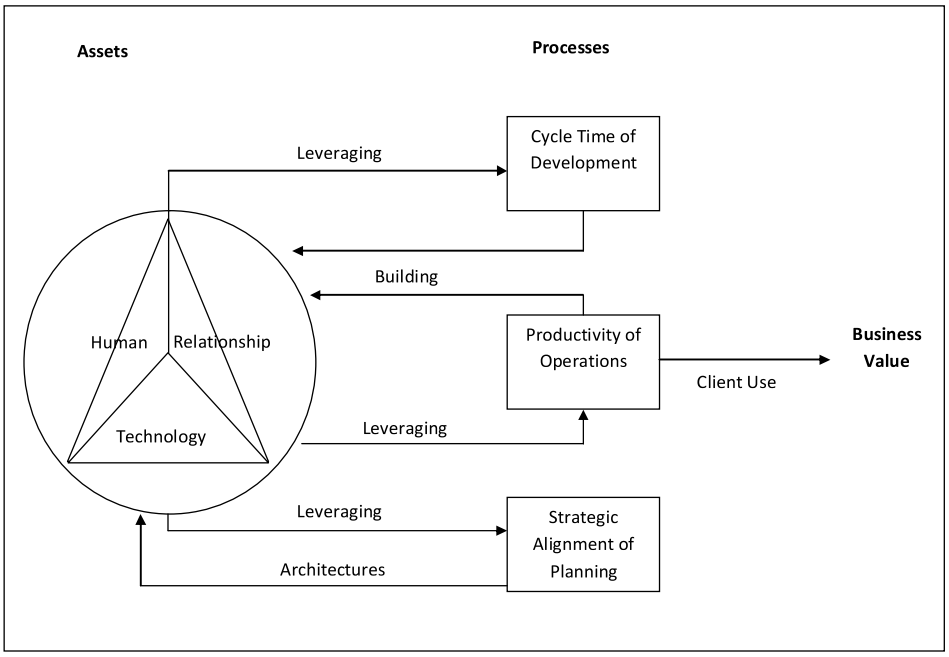
In the IT Assets model, the authors declare that IT assets are the reason to firm performance, neglecting the fact that IT infrastructure has no direct performance on

outcomes, and that IT assets is a necessary, but not sufficient, condition for business value. Information technologies represent a potential impact on aiding achieving better performances (Bharadwaj et al., 1993), but they are not directly link to firm performance. Markus and Soh argue that firm factors such as firm size will affect the ability of the organization to convert IT assets into business value.

2.2 LEVERAGING IS PROCESSES

Beath et al. (1994) ground their model (Figure 11) on the "IT Assets" model of Markus and Soh (1993). In their view of IT Assets they differ from Markus and Soh (1993) and consider the IT Assets beyond its technology nature. They consider IT as technology, human resources, and the relationships between IS and users (or clients). Their model can be depicted into two sub-models. The first process connects IT assets with IT-based processes by means of feedback loops. And the second connects the processes to business value. The whole model proposes that IT assets improve organizational performance by affecting three intermediate processes: cycle time of development, productivity of operations, and strategic alignment on planning. The improvement of the three critical business processes requires improvement in the quality of IT.

Figure 11 Leveraging IS Processes (source: Beath et al., 1994)

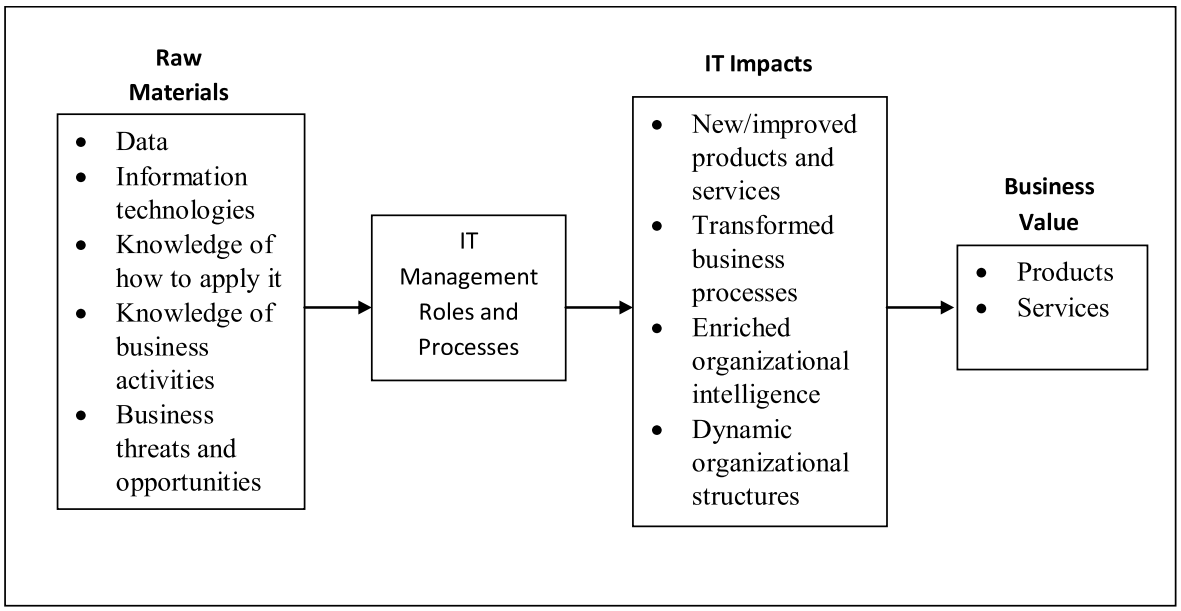


Although based on IT Assets' model (1993), Beath et al. (1994) view IT assets beyond the technological natures. They added the human relationships between IS and users as an asset for high quality assets. They argue that having a high quality of IT assets does not lead to business value; rather it leads to improvements in the business processes. And that business processes are intermediate outcomes to business value depending on the conversion effectiveness represented in "Client Use".

2.3 IT IMPACTS

Sambamurthy and Zmud (1994) propose an "IT impacts" model (figure 12) that consists of three sub-processes. The first two sub-processes consist about linking raw materials, IT management roles and processes, to IT impacts. The third sub-process connects IT impacts to business value.

Figure 12 IT Impacts (source: Sambamurthy and Zmud, 1994)



In the above model, we can find the conversion effectiveness of Weill's. It represents the intermediate outcome in the creation of business value. This conversion process does not lead to assets (similar to Markus and Soh, 1993), nor into business value (similar to Beath et al., 1994), rather this conversion process does lead to "IT impacts". Raw materials are necessary, but not sufficient, to lead to IT impacts. They necessitate a conversion process which is labeled "IT management roles and processes". Sambamurthy and Zmud (1994)

argue that business value results when there are IT impacts (new/improved products and services, transformed business processes, enriched organizational intelligence, and dynamic organizational structures.

In their assumptions, Sambamurthy and Zmud (1994) neglect the role that can have "structural factors" or "organizational context" in affecting the ability of the organization to convert IT assets into business value referred to by Markus and Soh (1993). They also ignore the conditioning of the relationship between assets, processes and business value defined by Beath et al. (1994). They condition the business value to process losses and lack of use. On the whole, their model introduces three assumptions. The first one is that IT impacts may not occur with availability of raw materials, dependent on IT management processes. The second assumption is that IT impacts occur when there are effective management processes. And the third assumption says that business value results when there are favorable IT impacts.

2.4 IT BUSINESS VALUE: A PROCESS THEORY

Soh and Markus (1995) propose a modified version of the model presented in 1993. Viewing the IT business value process model (Figure 13), we can say that Soh and Markus (1995) based it on the IT assets model presented by Markus and Soh (1993) and the model presented by Sambamurthy and Zmud (1994).

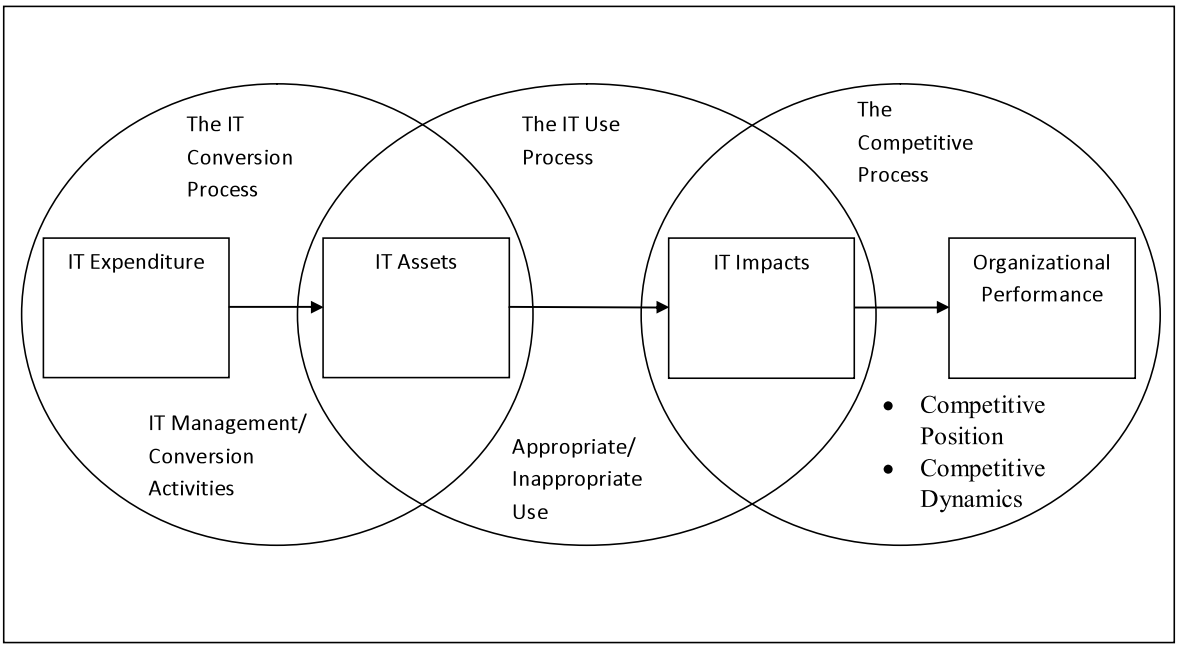
The updated process model of IT business value includes three processes. The authors advise viewing the process beginning from the end, rather than from the beginning, tracing backwards the intermediate outcomes necessary to arrive at a success. Their process model encloses one model which links improved organizational effectiveness to IT impacts, the second links IT impacts to assets, and the third links IT assets to IT expenditure.

The first model which results in an improved organizational performance is referred to as "the competitive process". This process is based on what Sambamurthy and Zmud (1994) have called "IT impacts". The organizational performance is conditioned with the attainment of IT impacts, or IT-enabled business processes. And the conversion of IT impacts into organizational performance necessitates favorable economic and environmental conditions to result in the expected outcome.

The second process is "The IT Use Process" where Soh and Markus (1995) highlight the necessary role of appropriate IT use essential for the impacts of IT. The conversion role of appropriate IT use is a necessary condition in order to have IT impacts based on IT assets (applications portfolio, IT infrastructure, and user skill).

And the third process is "the IT conversion process". This process by which an organization converts IT expenditures into IT assets, necessitate an "IT management" conversion. This IT management conversion define the quality of IT assets an organization possess.

Figure 13 IT Business Value: A Process Theory (source: Soh and Markus, 1995)



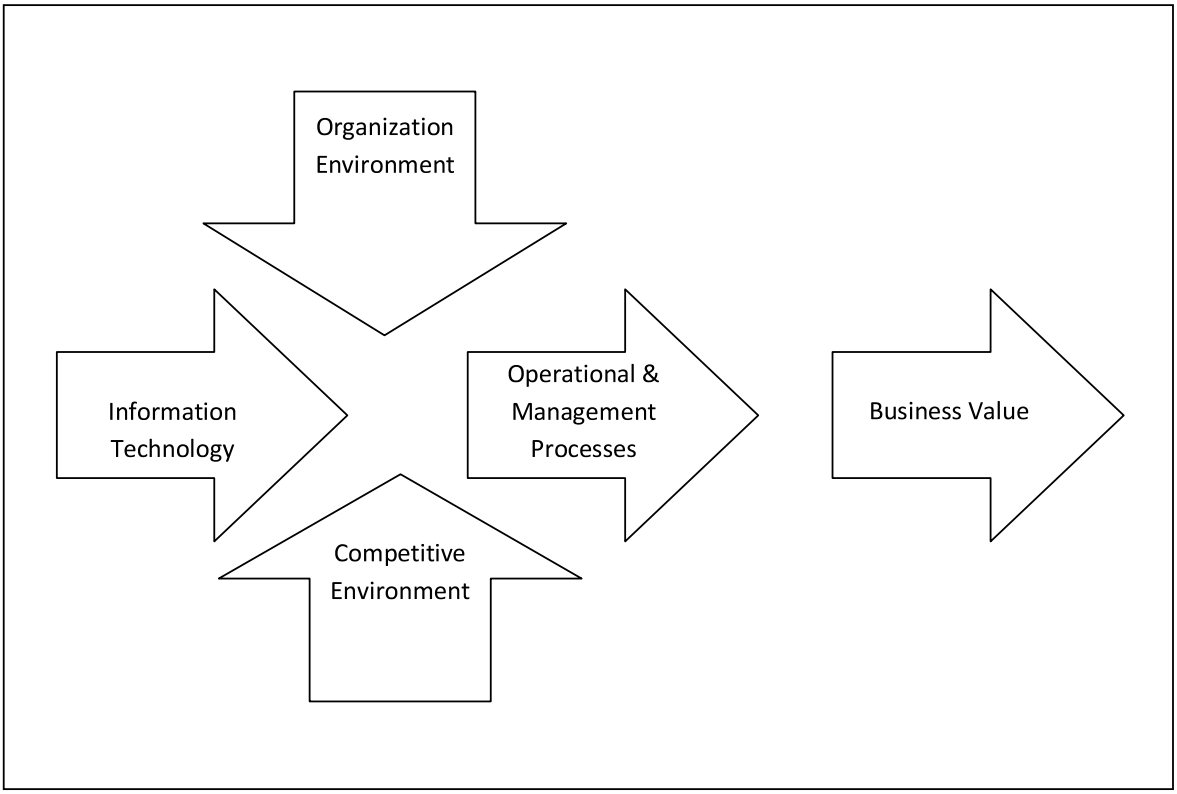
The model Soh and Markus (1995) presented above, is a process theory for IT business value. In their paper, they admit that it "may be required to explain the different dimensions of improved organizational performance" (p.36).

In the IT business value process theory model presented above, the authors tend to neglect the effect that can have organizational assets or factors such as size, culture, or system on the business value model of IT.

2.5 IT BUSINESS VALUE: A PROCESS MODEL

Mooney et al. (1995) argue that firms derive business value from IT through its impacts on intermediate business processes presenting another IT business value model (Figure 14). This model is similar to Soh and Markus (1995) model, where intermediate outcomes are operational and management processes. The intermediate processes comprise a firm's value chain and the management processes of information processing, control, coordination and communication. The potential business value of IT increases as IT continues to permeate and penetrate the organization, impacting an increasing number of processes at a deeper level. Information technology business value is manifested through three possible consequences on intermediate processes. First automational effects refer to the efficiency perspective of value deriving from the role of IT as a capital asset being substituted for labor. Second, informational effects emerge primarily from information technology's capacity to collect, store, process, and disseminate information. Third, transformational effects refer to the value deriving from information technology's ability to facilitate and support process innovation and transformation.

Figure 14 A Process Oriented Model of Business Value (source: Mooney et al., 1995)



Looking at the model, we can observe that the authors have neglected the impact of the environment on the conversion process of business processes into business value. Mooney et al. (1995) have tended to focus more on the business processes and their link to business value, rather than concentrating on the entire IT business value.

2.6 AN INTEGRATIVE IT BUSINESS VALUE MODEL

Melville et al. (2004) propose an integrative model of IT business value (figure 15) which comprises three layers: focal firm, competitive environment, and macro environment. The IT business value generation process happens in the focal firm, and the two other layers (competitive environment and macro environment) shape this value generation process.

Within the focal firm, the IT business value process can be described via two sub-processes. The first sub-process describes the impact that can have the deployment of IT and complementary organizational resources on business processes and their performance. The business processes and their performance serve as the intermediate outcome of the business value. The second sub-process shows the impact that can have the first sub-process on the organizational performance. To sum up the IT business value process within the focal firm, we can say that IT business value is generated by the deployment of IT and complementary organizational resources within business processes. The competitive environment layer, in which the focal firm operates, shapes the way in which IT is applied within the focal firm to generate business value. According to Melville et al. (2004), this environment can have impacts on the two sub-processes described previously. The third layer is the macro environment where specific country characteristics are capable of impacting the IT business value generation process. The constructs of the model are depicted in Table 7.

Figure 15 IT Business Value Model (source: Melville et al., 2004)

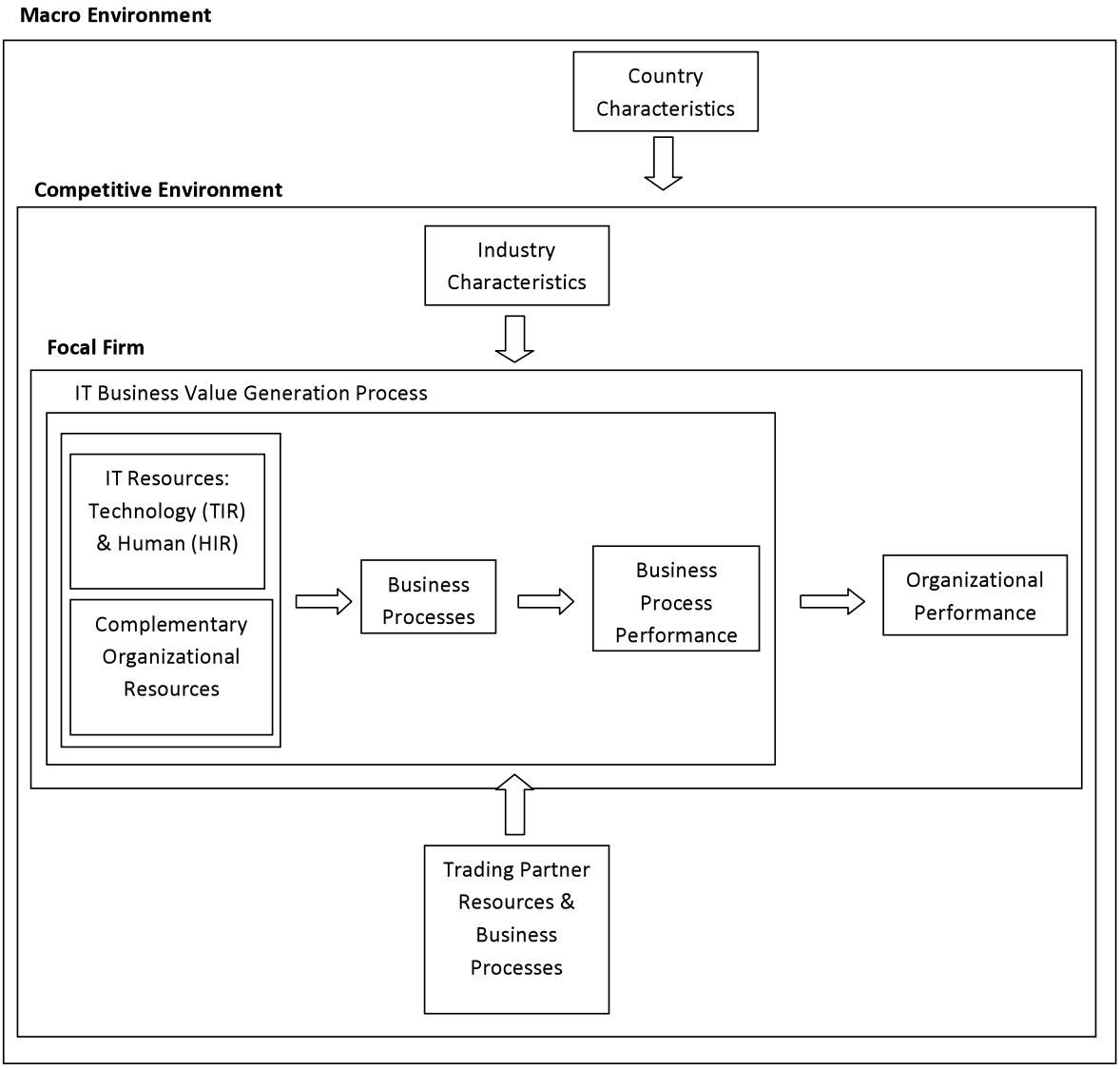


Table 7 IT Business Value Model Constructs (source: Melville et al., 2004)

Model Constructs	
I. Focal Firm	
IT Resources	
Technological IT resources (TIR)	Infrastructure: shared technology and technology services across the enterprise. Business applications: utilize the infrastructure, e.g., purchasing, sales, etc.

Human IT resources	Technical skills: programming, systems integration, database development, etc. Managerial skills: collaboration with business units and external organizations, project planning, etc.
Complementary Organizational Resources	Organizational resources complementary to IT, categories of which include non-IT physical resources, non-IT human resources, and organizational resources (Barney, 1991), including organizational structure, policies and rules, workplace practices, culture, etc.
Business Processes	Activities underlying value generating processes (transforming inputs to outputs). Inbound logistics, manufacturing, sales, distribution, customer service, etc.
Performance	
Business process performance	Operational efficiency of specific business processes, measures of which include customer service, flexibility, information sharing, and inventory management.
Organizational performance	Overall firm performance, including productivity, efficiency, profitability, market value, competitive advantage, etc.
II. Competitive Environment	
Industry Characteristics	Industry factors shaping the way in which IT is applied within focal firm to generate business value, including competitiveness, regulation, clock-speed, etc.
Trading Partner Resources and Business Processes	IT and non-IT resources and business processes of trading partners such as buyers and suppliers
III. Macro Environment	
Country Characteristics	Macro factors shaping IT application and IT business value generation, including the level of development, basic infrastructure, education, research and development investment, population growth rate, culture, etc.

All presented IT business value models prior to the model of Melville et al. (2004) are all process-oriented models that describe the relationship between IT investment and firm performance including intermediate outcomes. What Melville et al. (2004) added to the previous models is that they incorporated the external environment of trading partners, industry characteristics, and socio-political conditions into the IT business value model. Although Soh and Markus (1995), e.g., have incorporated factors outside the firm's control into their model, they have specified their role in the competitive process conversion and not throughout the entire IT business value generation. Other addition brought by the model of

Melville et al. (2004) is the inclusion of complementary organizational resources as a necessary factor in the IT business value and not as a conversion factor. We believe that Melville et al.'s model integrates the many findings of the empirical studies conducted in the IT productivity topic such as the environment role or the complementary organizational role in shaping the organizational performance impacts of information technology.

2.7 INTEGRATING FRAMEWORKS

Viewed in this way, the models described before, though treating the IT impact on the firm performance, differ in the kind of causal relationships posited between concepts and/or constructs. At the same time, the models have some converging points that we can use as we progress in our thesis.

In the Table 8 below, we exhibit a comparison of the different referenced models.

Table 8 Characteristics of the Five IT Business Value Models

	Input	Moderator	Intermediate Outcome	Moderator	Business Value
Markus & Soh (1993)	IT expenditure	*IT management*	IT assets	*Structural factors*	Firm performance
Beath et al. (1994)	Assets	*Process losses*	Processes	*Client use*	Business value
Sambamurthy and Zmud (1994)	Raw materials	*IT management roles and processes*	IT impacts		Business value
Soh and Markus (1995)	IT expenditure	*IT management*	IT assets		
	IT assets	*Appropriate IT use*	IT impacts	*Business condition*	Organizational performance
Melville et al. (2004)	IT resources	*Competitive environment*	Business processes	*Competitive environment*	Organizational performance
	Complementary organizational resources	*Macro environment*		*Macro environment*	

The first model is a two sub-process model. The first one suggests that IT investment will lead to IT assets depending on favorable IT management. The subsequent process argues that structural factors (e.g., firm size) will affect the ability of the organization to convert the IT assets into firm performance. Although IT management is necessary to IT assets, it is a discrete construct in the model. It represents the conversion effectiveness concept. The structural factors, which can affect the business value process, are not represented in the model although the authors mention them in the model's discussion.

The second model (Beath et al., 1994) posits assets as a necessary condition to business processes. Beath et al. (1994) acknowledge the role of resources exterior to IT in forming assets. In their view, assets consist of technology, human resources, and the relationship between technology and users. In their model, Beath et al. (1994) consider that assets will impact intermediate process level and that client use conditions the relationship between those processes and business value. The originality of this model comparing to its previous is that it considers the information system construct as an input in the IT business value, and that IS impacts intermediate process before having impacts on firm performance.

In their model of IT business value, Sambamurthy and Zmud (1994) suggest that IT impacts are an intermediate variable outcome. They specify four IT impacts: new/improved products and services, transformed business processes, enriched organizational intelligence, and dynamic organizational structures. This IT impacts depends on raw materials accompanied with favorable IT management roles and processes. In the raw materials, we find the information technologies along with other organizational resources such as data, knowledge of how to apply IT, knowledge of business activities, and business threats and opportunities. In their model, Sambamurthy and Zmud argue that IT impacts, which are an intermediate outcome, are as a necessary and sufficient condition for business value. They neglect the role that can have structural factors referred to by Markus and Soh (1993).

Soh and Markus (1995) presented their model of IT business value. In their procedure for the construction of the model, they were based on five IT business value models, including the three above. Their model is a three sub-process model where two intermediate outcomes emerge: IT assets, and IT impacts. IT assets result from the conversion of IT expenditure conducted with favorable IT management. And IT impacts are the consequence of appropriate use of the IT assets. In those two sub-processes, the authors make a clear

distinction between the information technology and the other resources to the organization. They also ignore other factors that can have an impact in the conversion process when they sketch that IT expenditure escorted with favorable IT management results into IT assets and that IT assets if used appropriately will lead to IT impacts. On the other hand, Soh and Markus (1995) acknowledge the fact that competitive position and competitive dynamics have a role in converting IT impacts into organizational performance, a factor neglected previously.

Melville et al.'s model of business value shows the information system resources and all complementary organizational resources as necessary inputs to the IT business value. Those resources will have an impact on the business processes depending on the external environment (trading partner resources and business processes, industry characteristics, and country characteristics). Organizational performance results when there are favorable external environment. In this model, the authors consider the information technology and all the necessary complementary resources as one input in the business value generation. Similar to the previous models, they define an intermediate outcome to business value which is in this case the business processes and their performance. The originality of this model is that throughout the entire business value process, the role of external factors in affecting the process is mentioned, and that the business value of IT is applied in the whole environment of the company: the focal firm, the competitive environment, and the macro environment.

As mentioned earlier, the above models have some converging points that we will use to progress in our thesis. The elements to build on are numerous. First, in evaluating information technology impact on business performance, the information technology artifact should be considered as an organized resources of material, software, personal, data, procedures to acquire, treat, stock, communicate information in organizations (adapted from Reix, 2000). The information technology can be applied to improve organizational performance, but successful application of IT is often accompanied by complementary organizational resources (e.g., Bharadwaj, 2000; McAfee, 2002; Ross, 1996). The elements of this construct can be found in the previous models as IT expenditure, IT management, IT assets (Markus and Soh, 1993); assets (Beath et al., 1994); IT expenditure, IT management, IT assets, appropriate use (Soh and Markus, 1995); and IT Resources and complementary resources (Melville et al., 2004).

The second concept to consider in IT business value is the intermediate outcome, since when defining IT business value, IT impacts at both the intermediate process level and organization-wide level. IT enables existing processes as well as enables creating new ones (Basu and Blanning, 2003). The IT business value models refer to this intermediate process as IT impacts (Sambamurthy and Zmud, 1994; Soh and Markus, 1995), which denote the impact that can have the application of information technology on business processes. Melville et al. (2004) use the term business processes to indicate the intermediate outcomes of the IT business value.

The third concept in evaluating IT business value is the factors outside the firm's control that might have an impact through the business value process generation (Arthur, 1990). Soh and Markus (1995) refer to those factors as the competitive position and the competitive dynamics. In their three layer model, Melville et al. (2004) define the outside factors as to the competitive environment and the macro environment, being more inclusive than Soh and Markus (1995). Outside factors play a role in shaping the IT business value generation of the firm (Chatfield and Yetton, 2000; Devaraj and Kohli, 2003; Dewan and Kraemer, 2000; Hill and Scudder, 2002; Jarvenpaa and Leidner, 1998; Jorgenson et al., 2003; Kettinger et al., 1994; Kraemer et al., 2000; Mukhopadhyay and Kekre, 2002; Williams and Frolick, 2001).

The fourth, and the final, concept in evaluating the business value of information technology is the outcome of interest: the improved organizational performance due to IT. The many research, addressing the organizational performance of the information technology, as we have noticed in Table 6 present numerous metrics to evaluate the IT productivity. The divergence in the metrics measuring the IT productivity can be linked to the notion that says that productivity metrics cannot capture the full impact of ICT (Sigala, 2003). Many sources suggest that IS/IT investment is different from other investment engendering the difficulty to identify the costs and the benefits. The information system's literature introduces different methods and approaches for conducting effective evaluations of the IT/IS.

In the following part, we will discuss the different IS/IT evaluation techniques.

3 IS/IT BUSINESS VALUE APPRAISAL

Evaluation is linked to human existence and is an appraisal process usually by careful study of an object's condition or to determine the worth or significance of something (Merriam-Webster dictionary). According to Dressel (1976), "an evaluation is both the worth or impact of a program, procedure, or individual, and the process whereby judgment is made".

Whether consciously or not, evaluation is undertaken in the attempt to determine how well something meets a particular expectation, objective or need, especially if the elements, to evaluate, are expensive, likely to have important consequences (Hirschheim and Smithson, 1999). An example can be the computer-based information systems. The main purpose of evaluation is to decrease uncertainties, improve effectiveness and thus making appropriate or right decisions (Patton, 1987). Evaluation focuses on and addresses action. Program evaluation is utilized to reduce uncertainties, inform decisions, clarify options, and provides and facilitates information about programs and policies that function within the limited contextual zone of time, place, values, and politics.

The IS/IT evaluation is in the heart of many research, including the present one. Back in the 1980s, there was an entire journal dedicated to the IS evaluation: "Systems, Objectives, Solutions". And ever since, the importance of IS/IT evaluation did not fall, due to the colossal amount of money being spent on IS/IT, and evaluating the outcome is always required. In the information systems field, many studies show difficulties in establishing the business value of IT (Grindley, 1995; Willcocks and Lester, 1996; Graeser et al., 1998). They link the difficulties to indifferent evaluation practice, lack of understanding of possible methods, or how to measure performance.

The numerous existent methods and techniques of IS/IT appraisal highlight the difficulty of the task. Nowadays, after nearly forty years, we can always refer to what McRea (1970) wrote. He states "the computer is a difficult investment to evaluate because the income from the computer is not as clearly defined as it is with other investments". In fact, there are probably very few business investments which are possible to evaluate easily, and the reason for that is that outcomes can be masked. Research points to business value

differences, with companies getting "good" or "very good" value from IT, while others are less certain about the IT payoff now and less optimistic about IT payoffs in the next years.

Following, we will present the different methods and techniques to approach the IS/IT evaluation.

3.1 IS/IT EVALUATION APPROACHES

According to Willcocks (1992), evaluation "is about establishing by quantitative and/or qualitative means the worth of IS to the organization…bringing into play notions of cost, benefit, risk, and value".

Powell (1992, p.30) notes that current evaluation techniques approaches can be divided into objective and subjective methods thanks to Zakierski (1987). Objective methods seek to quantify system inputs and outputs in order to attach values to the items. Generally objective methods are quantitative. Dos Santos (1991) refers to such methods as financial methods to appraise quantitatively the information system whereas subjective methods are usually qualitative. Subjective methods acknowledge the frailty of the values so computed and rely instead on the attitudes and opinions of users and system builders.

3.1.1 OBJECTIVE OR SUBJECTIVE METHODS

As mentioned before, objective methods are based on quantitative techniques to evaluate and categorize the costs associated with a system. The literature suggests that the most popular methods for assessing and evaluating IT come from the field of finance and focus on cost-benefit analysis.

Generally theses methods are considered theoretically well grounded, and are easy to apply. The commonly used techniques include cost-benefit ratio, average return on investment or return on investment, internal rate of return, and net present value (Apostolopoulos and Pramataris, 1997; Bacon, 1992; Brealey and Myers, 2010; Laudon and Laudon, 1999; Violino, 1998). A review of these techniques is presented in the section 3.2 below. These methods try to identify all significant and relevant costs and the corresponding system benefits. The complexity of such a method is to identify the corresponding benefits of the system. Overly (1973) states that information systems result in costs and benefits which

were not identified in the planning and the resource allocation process, and as a result recognizing costs and benefits of the system will be hard since there are benefits and costs not acknowledged or taken into account.

As a consequence, objective methods, such as the traditional evaluation techniques, are necessary for justifying IT/IS investments, but are not sufficient tools for assessing the business value of information systems (Currie, 1995). Symons and Walshman (1988) noted that information systems are used to enhance organizational performance; that enhancement is not necessary translated in tangible benefits; information systems produce benefits that are often intangible. The shortage of the financial approaches is felt as they fail to capture all of the contributions provided by IS since they only encompass the financial dimension. Indirect costs and other intangible costs are more difficult to quantify, and, therefore, are not well reflected in the objective methods.

Evidence from the limitation of objective methods to assess the business value of IS/IT, the continuous long term effectiveness of firm, and the impact of less quantifiable activities have addressed a new movement for IS/IT evaluation; "the movement to soft or subjective analysis" (Powell, 1992). The notion behind subjective methods is to get the information system into the manager and/or user giving them a sense of participation, ownership and commitment.

Subjective methods are as quantifiable methods as objectives ones, but they quantify the feelings, attitude and perception. Thus, and by their nature, subjective techniques are used ex-post in the evaluation. They present a basis for comparing the performance characteristics of similar systems (Powell, 1992).

Both methods are quantitative methods, and are postulated as rigid structures, and formal evaluation techniques. Powell (1992) note that the problem of quantitative methods is that they are not able to measure intangible items and that they proceed to attach values to intangible benefits and costs in order to carry out the evaluation.

Treating IS evaluation as a technical problem, which only considers the quantitative aspect of the system, leads to meaningless conclusions (Hirschheim and Smithson, 1988) especially that benefits tend to be qualitative and often intangible. As systems have become more complex, interconnected and have moved from a narrowly and tactically view towards a

broadly and strategically view, evaluation should overlook the social activity as well as the socio-political environment. Symons (1991, p.211) argues that evaluation must look beyond "a narrow quantification of costs and benefits to an analysis of the opportunities presented by information systems, together with the potential constraints on its application".

A review of the literature on information systems evaluation has permitted Hirschheim and Smithson (1988; 1999) conclude that most IS evaluation concentrates on the quantification and technical aspects of the system rather than the human and social aspects of the system. In order to gain a deeper understanding of the nature of evaluation, and to include recognition of the information evaluations carried out by all individuals and social groups who are affected by the information system, the authors propose the interpretive approach.

3.1.2 INTERPRETIVE METHODS

As information systems started to being recognized as both social and technical entities, many calls for interpretive approaches to IS have increased (Hirschheim and Smithson, 1988; Symons, 1991; Walsham, 1993).

Interpretive approaches do not eliminate the previous two approaches; rather, in some circumstances interpretive approaches offer something extra for the understanding of the costs and benefits of an information system and its human and organizational consequences. In that case, the evaluation could be improved and learning is enhanced (Willcocks and Lester, 1993). Similar to Willcocks and Lester (1993), Farbey et al. (1994) and Farbey et al. (1999) concluded that multistage evaluation would enable a better assessment for the IT/IS. They suggest that a process-based approach to evaluation would present a more in-depth understanding and evaluation. According to Walsham (1999) and Willcocks and Lester (1999) the process-oriented approach points towards the interpretative evaluation methods.

The interpretive evaluation approach has been reported as a capable evaluation approach with important implications for practice (Avgerou, 1995; Farbey et al., 1999; Symons, 1991; Hirschheim and Smithson, 1999; Symons and Walsham, 1988; Walsham, 1999). Since the many interests in this type of evaluation approach, researchers have suggested principles to guide interpretive evaluation process (e.g., Avgerou, 1995; Heiskanen, 1994; Jones and Hughes, 2001). These researches have lead to the further

development of the interpretive evaluation framework approach: the Content, Context, Process (CCP) framework.

The CCP framework use, as an approach for evaluation, is to address the questions of what is being measured, by whom and for what purposes. The interaction and links between the three actors (i.e., content, context, process) of the framework allows a multiple way of evaluation exploration, thus encouraging deeper questions in regard to socio-technical-political aspects of evaluation to be asked (Stockdale and Standing, 2006).

The content refers to "what" should be measured (Serafeimidis and Smithson, 1996). In addition to the "what", Walsham (1999) specifies that in any evaluation exercise a specific task is to decide the purpose (the "why") and the content of the evaluation. An information system can impact on social, economic, organizational and management terms (Smithson and Hirschheim, 1998) thus this indicates the need for determining the purpose of the evaluation, the values and the criteria to be considered. The choice of the content determines what it includes and excludes and depends on the stage of the evaluation in the cycle of development on the information system. Where the purpose of any evaluation is to deepen understanding, the CCP evaluation framework can be applied at different stages. At an early stage for the feasibility study; during the process of implementation for design modification; and after implementation for the goal appraisal and/or for further modification, the CCP can be applied with different "content" objectives and measurements. Recognizing the gap of the financial approaches in assessing the intangible part of "what" to be evaluated, the interpretive approaches succeed in identifying the intangible part of the information systems (Symons, 1991). The factors included in the "what" in an interpretive evaluation will include human, organizational and political concerns, issues and values in addition to technical and economic criteria (Walsham, 1999), thus extending beyond the narrow costs and benefits.

The second task in an interpretive evaluation is to define and understand the evaluation context (Walsham, 1999). The context can be influenced by both the inner, organizational context and the outer, external context. The inner factors include organizational structure, organizational goals and strategies, organizational culture, political structures, and hierarchical structures (Irani and Love, 2001; Smithson and Hirschheim, 1998; Symons, 1991; Willcocks, 1992). The outer factors can refer to social, political, economic and technological factors such as national economic situation, government policy and

legislation, market structures and conditions, competitive environment, industry sector and technological developments (Jones and Hughes, 2001; Serafeimidis and Smithson, 2000; Smithson and Hirschheim, 1998; Symons, 1991). The organizational and external factors continuously interact with each other (Stockdale and Standing, 2006) influencing therefore the evaluation process and its outcome (Jones and Hughes, 2001). In understanding the context in the interpretive evaluation, Walsham (1999) underlines a key element which is the assessments of the stakeholders. Stakeholders can be initiators of the evaluation, the evaluators who conduct the evaluation, the users of the systems being evaluated and a range of other interested parties (internal or external). In defining the context, the evaluator must decide which parties are relevant to the project being evaluated and thus, other researchers (e.g., Serafeimidis and Smithson, 1996; Stockdale and Standing, 2006) state that the context will determine the reason for an evaluation and requires the "why" and "who" of the evaluation to be considered in the context section. The "who" includes the stakeholders while the "why" rejoins the "purpose" of the content. It refers to some value reasons for the IS evaluation such appraisal of value, measures of success or recognition of benefits.

The process is the effective conduct of the interpretive IS evaluation approach. The role of the evaluator is to create the best suitable climate for the learning to take place. During an interpretive approach, the criteria of the evaluation are determined by the content, the purpose and the context that the evaluator decided (Avgerou, 1995; Walsham, 1999). It is a participation process that allows stakeholders to express their views and has an objective a specific action. The social interaction and actor perception plays an important role in the evaluation process (Jones and Hughes, 2001) because the outcome of that exercise may provide a facility to enable action (Walsham, 1999).

The interpretive approach for evaluation considers the information system from a broader view and represents a framework for analyzing and understanding information systems. This approach permits to capture the different factors that need to be taken into consideration in an effective evaluation (Hirschheim and Smithson, 1999; Walsham, 1999). As evidenced in the beginning of this section, interpretive approach does not eliminate the previous two approaches. It adds a missing dimension to the more traditional evaluation approaches.

During the exercise of an IS evaluation, two themes do rise and were referred to within the concepts identified by Pettigrew (1985) and Symons (1991). The first theme is the discussions of the paradigms that should be used to approach the evaluation process. And the second theme consists of the development of instruments and tools to measure identifiable constructs. So far, we have discussed the different approaches for evaluating information systems; next we will enumerate the different evaluation techniques.

3.2 EVALUATION TECHNIQUES

Different techniques and tools are available for evaluating IS/IT investments and the performance resulting from. In addition to the considered criteria, tools and techniques play major role in the evaluation exercise and on the resulting action. The literature confirms that there is a multiplicity of evaluation techniques or approaches available, each with its own characteristics and focus.

In a general matter, evaluation techniques can be classified following two main schemes: financial and non-financial measures. Despite the straightforward application of traditional financial measures, the strategic and intangible nature of some information systems benefits make it desirable to include non-financial performance measures in the appraisal of information systems (Irani and Love, 2008).

3.2.1 FINANCIAL MEASURES

Financial performance measures can be useful in assessing the tactical and strategic impact of information systems on firm performance as well as in measuring operational IS/IT impact (Irani and Love, 2008). The different advantages of financial measures in evaluating information systems projects, as to any other type of project, make them seem the obvious choice for evaluating.

While return on investment (ROI) has always been important in assessing information technology investment (Cavusoglu et al., 2004), the investment appraisal in today's companies is mainly based on financial cost-benefit analysis, conducted using traditional capital investment appraisal techniques (Irani and Love, 2008).

Below, we provide an outline of some of the methods referred to in the literature. First we present the ROI method, and subsequent we show other financial measures used in the literature to evaluate information systems projects.

Return on investment (ROI) (Radcliffe, 1982) approaches include a number of formal investment appraisal techniques. ROI techniques represent the obvious methods for project evaluation and traditionally used by various organizations (Loveman, 1994; Mahmood and Mann, 1993; Weill, 1991).

The ROI methods are based on evaluating projects by presenting the ratio of annual benefits on the annual investment. The best known of the ROI methods are those which are based on evaluating the current value of estimated future cash flows, on the assumption that future benefits are subject to some discount factor and risk.

The most widely used method is probably internal rate of return (IRR), which sums up the entire project in one measure: the internal rate of return. This can be compared with a hurdle rate of return, set by the financial management of the organization, to decide whether the project should go ahead. The main strength of the method is that it permits decision makers to compare the estimated returns on alternative investments, for example permitting a decision to hold cash at the bank rather to invest in some internal project. The weakness is that some good investment possibilities are withheld because benefits are difficult to assess in attributable cash-flow terms. Historically, some of the IT projects which have provided the best returns in terms of competitive advantage would not have satisfied the prevailing ROI criteria (Farbey et al., 1999).

Table 9 ROI Technique

Formula	Strengths	Weaknesses
Average Rate of Return on Investment (ARR or ROI): sometimes referred to as the average return on book value or the accounting rate of return, this formula represents the ratio of average net income of an investment after depreciation and taxes to the average annual investment. Projects are accepted when ratio is greater than or equal to company or industry averages.		
$\frac{Avg.\ Annual\ Incomes}{Avg.\ Annual\ Investment}$	- Can easily calculate and compare	- Ratio is compared to ad hoc and arbitrary yardsticks - Ignores time value of money, giving too much weight to distant cash flows and insufficient weight to more immediate receipts - Focuses on accounting income, not cash flows, which are affected by how a firm treats depreciation and which cash flows are defined as capital expenditures - Does not account for qualitative/intangible factors - Ignores risk

Cost-benefit analysis (CBA) (King and Schrems, 1979) is an approach that attempts to find (or compute) a money value for each element contributing to the cost and benefit of a development project.

In CBA, elements which have no quantifiable market value will be assigned a value based on some notion of valuation.

The resulting cost-benefit values can be projected in the form of notional cash flows on a year-by-year basis and the projected outcomes for alternative schemes or designs fed into a decision model based on one of the standard ROI methods. The main weakness of

classic CBA is the artificial nature of some of the surrogate measures. Table 10 explains different techniques for cost-benefit analyses.

Table 10 Evaluation Techniques for Cost-Benefit Analyses

Formula	Strengths	Weaknesses
Simple Cost-Benefit Ratio: a simple ratio of a project's total benefits to the total costs incurred. Projects are accepted if their ratio is greater than one or if a firm has a minimum cost-benefit ratio that must be attained.		
$\frac{Total\ Benefits}{Total\ Costs}$	- Can easily be calculated and compared - Provides a means to rank multiple projects based on capital efficiency	- Ignores time value of money - Fails to consider the timing of cash flows - Ratio is compared to ad hoc and arbitrary yardsticks - Minimum cost-benefit ration in a firm is arbitrarily set - Can be misleading when comparing multiple projects since this technique is insensitive to the magnitude of the project returns - Does not account for qualitative/intangible factors - Ignores risk
Profitability Index (Benefit-Cost Ratio): Ratio of a project's present value to the initial investment; projects are accepted when the index is greater than one		
$\frac{Present\ Value}{Initial\ Investment}$	- Can easily calculate and compare - Useful for ranking projects (by greatest NPV per dollars invested) under conditions of capital rationing - Closely resembles net	- Can be misleading when comparing mutually exclusive projects - Ratios cannot be summed in the same way values can be added - Does not account for qualitative/intangible

	present value	factors
Net Present Value (NPV): using the NPV as an evaluation technique will permit the company to evaluate the profitability of the project in doing a comparison between the initial investment and the awaited cash flows. Projects are accepted and profitable when investments show a positive NPV. When choosing between different projects, the one with the highest NPV will be retained.		
$C_0 + \sum_{t=1}^{n} \frac{C_t}{(1+r_t)^t}$ **Where C_0 is the initial investment;** **C_t is the cash flow for time period *t*;** ***n* is the duration;** **and r_t is the interest (or discount) rate for period *t***	- Accounts for time value of money - Allows comparison of mutually exclusive projects and projects of unequal duration	- Some may find this approach more difficult to comprehend and more involved in terms of calculations - The risk-adjusted discount rate (r_t) can be difficult to determine - Does not account for qualitative/intangible factors
Internal Rate of Return (IRR): it refers to the rate of discount at which a project's net present value (NPV) equals zero. Projects are accepted when the calculable IRR is in excess of the opportunity cost of capital		
$\left(\frac{Payoff}{Investment} + 1\right)$ **or** $C_0 = \sum_{t=1}^{n} \frac{C_t}{(1+r_t)^t}$	- Can easily compare rates	- Difficult to calculate for multi-year projects with multiple payoffs - Multiple rates of return may exist when there is more than one change of sign in cash flows - May provide inaccurate rankings when comparing investments of different size or different timing of cash flows - Incorrectly assumes that net cash inflows can be reinvested at the same rate

Where C_0 is the initial investment; **C_t is the cash flow for time period *t*;** **n is the duration;** **and r_t is the interest rate for period *t*** $C_0 + \sum_{t=1}^{n} C_t = 0$		- Cannot finesse the term structure of interest rates, making it difficult to account for multiple opportunity costs - Does not account for qualitative/intangible factors
Payback or Breakeven: it represents the time period needed to recover initial investment expenditure. Projects are accepted if their payback periods are deemed appropriate by guidelines established within the firm		
Where C_0 is the initial investment; **C_t is the cash flow for time period *t*;** **and n is the duration**	- Can easily be calculated and interpreted - Reflects a "real world" in which technology costs decline over time and the technology itself quickly becomes obsolete - Provides a yardstick to complement other techniques like NPV and IRR	- Ignores time value of money - Fails to account for cash flows after payback period - Cutoff period is arbitrary - May be misleading when evaluating mutually exclusive projects - Encourages a short-term, rapid-return focus at the expense of long-term benefits - Does not account for qualitative/intangible factors - Ignores risk

The superficiality of much cost-benefit analysis can be seen in the lack of attention given to the identification and management of benefits (Peters, 1996; Ward and Griffith, 1996). Strassmann (1985; 1990; 1997) tries to deal with that gap of cost-benefit analyses when trying to determine the value added by management.

Concerning IT projects evaluation, Semich (1994) reveal that financial measures can have contradictory results. Many IT projects fail to convince on financial measures and in the meantime are profitable. This gap is due to the shortage of financial measures to value the strategic opportunities of information systems (Dos Santos, 1991). Dos Santos (1991) reviews the inability of traditional financial analysis of IT investment to give a real present value of the project. The author highlights that IT investments can derive their benefits from future IT investments, and that traditional financial measures fail to capture this value.

Dos Santos (1991) implies the application of the "real options theory" (Black and Scholes, 1973) to IT investment where managerial flexibility and management options are taken into account, thus bridging strategic and financial investment. Although this theory encloses some advantages, it remains difficult to apply and determining the business value of the information system exhibits some difficulties (Li and Johnson, 2002). Moreover, real options theory to measure business value of IT presents a gap where the benefits perceived from information systems are intuitive (Strassmann, 1988) and not based on future discounted flow of money.

The numerous financial measures, mentioned above, like ROI and CBA are employed by companies wishing to evaluate their information systems; however, companies have problems in estimating the costs and benefits accurately in economic terms simply because they do not include the impact of intangible and non-financial criteria. The drawbacks of financial measures have been underlined by many authors, e.g., Earl, 1989; Parker et al., 1988; and Willcocks, 1994. The main criticism is that financial measures are based on quantifiable factors, and find difficulties in evaluating intangible benefits corresponding to a larger part of the acquirable benefits after adopting an information system.

Besides the drawback financial measures enclose, such methods are not appropriate to evaluate the business value of information systems, since the use of those methods is proper to ex-ante evaluation, where companies justify investments' decision. Trying to bypass the enumerated shortcomings, microeconomics approaches came into view to evaluate information systems not at the organizational level (Van Nievelt and Willcocks, 1999), nor at an ex-ante situation, but to evaluate information systems with measuring quality changes (Brynjolfsson, 1993) and in an ex-post situation. Microeconomics theory, try to evaluate information systems by measuring quality changes and benefits that are poorly represented in

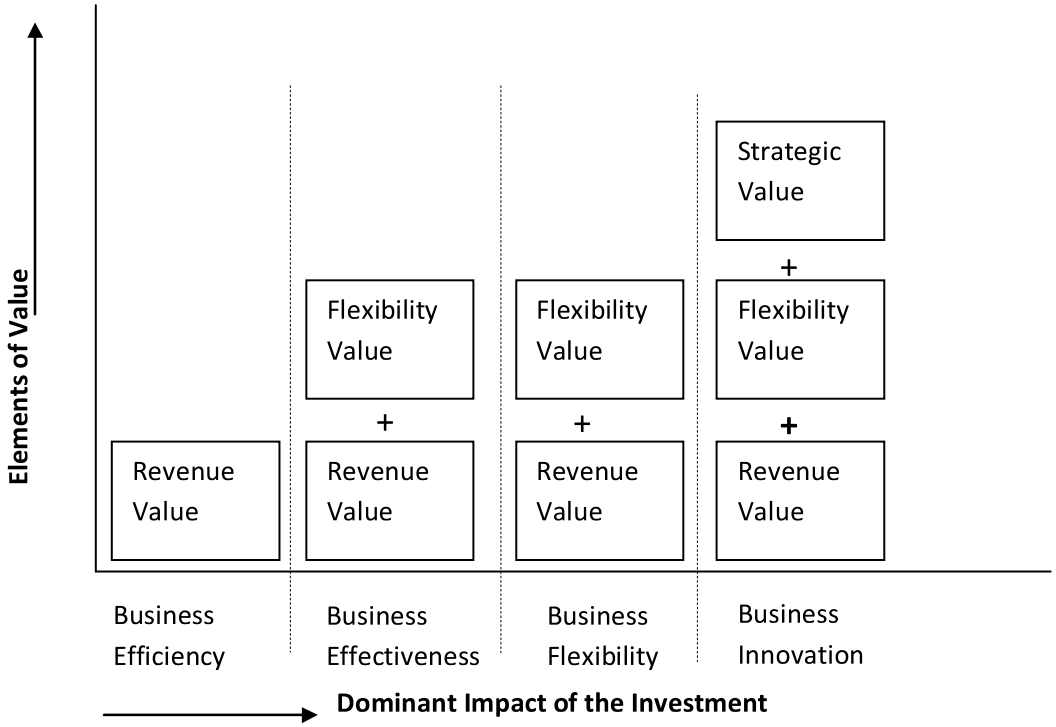
productivity statistics (Brynjolfsson, 1993). Such theories know also the same drawbacks of the previous ones in evaluating information systems. They both try to quantify benefits and neglect the intangible benefits of information systems.

In an attempt to evaluate the organizational impacts of information systems, the commonly used economic performance indices have presented a bleak picture. Those measures focused almost on quantitative indices which observe the IT at organizational or industrial levels (Chan, 2000) and appear to fail in assessing the business value of IT, leaving the attention and the concentration on more qualitative approaches. In the same direction, Brynjolfsson (1993) concludes on page 76 "…perhaps inappropriate it would be to try to translate the benefits of IT usage into quantifiable productivity measures of output". He highlights the deficiencies of the measurement techniques and invites researchers to look beyond the productivity statistics and incites to become interested in the more intangibles.

Farbey et al. (1992) mention that ROI is not often used for information systems appraisal, primarily because it is unable to capture many of the quantitative and intangible benefits information systems bring. Financial measures cannot provide the complete business value of information systems, principally because IT effects are more than just efficiency improvement. Silvius (2008) shows the relationship between the impact of an investment and its value. If we follow the dominant impact of the investment shown in Figure 16, we can logically say that based on the information systems' impact, higher elements of value should be assessed.

Assessing the business value of information systems means that organization should capture the whole impact such a system can have. Information systems are expected to yield benefits that are primarily intangible, indirect, or strategic (Van Grembergen and Amelinckx, 2002) and since return of investment calculation cannot capture all elements of value, a more balanced approach is appropriate. Authors like Earl (1996) and Willcocks et al. (1997) argue that information system are strategic systems, and that their evaluations should focus more on the impact on business and should consider business goals and critical success factors rather than pure costs and benefits.

Figure 16 Relationship Between Investment's Impact and Value



Source: Khosrow-Pour (2004)

3.2.2 NON-FINANCIAL MEASURES

To avoid the difficulties inherent in trying to measure costs and benefits, companies try to examine the information system with respect to either organization's or the system's objectives. Non financial measures aim at acknowledging intangible elements. The many drawbacks of the previous techniques has resulted in the development of many alternative tools, measures and methodologies for evaluating the business value of information technology (e.g., Farbey et al., 1992; Kaplan and Norton, 1992; Parker et al., 1988).

The best suited way for the evaluation of an information system would be a compromise between the two measures (financial and non-financial). Decision-makers should always try to quantify where possible, but otherwise include in some way, relevant intangible benefits and costs, otherwise "there may be an absence of disciplined analysis, no real basis of objective measurement, and limited awareness of the true costs and benefits of IT investments" (Belcher and Watson, 1993). The non-financial measures combine the strengths

of each type of methods reviewed earlier. They combine the strengths of quantitative and qualitative measurements and the level of measurement (system, process, and organization). They are referred to as multi-dimensional methodologies or balanced methodologies (Barnes and Hinton, 2007).

In this section, we will expose some of the techniques that appear to include non financial performance measures in the evaluation of information systems reflecting the strategic and intangible nature of the business value of IT. Some of the methodologies that fit in this evaluation technique are: Information Economics and balanced scorecard.

Information economics (IE) (Parker et al., 1988) seeks to be the only method to deal with the evaluation of information systems. It is elaborated on the basis of the many intangible cost and benefits that are not taken into account in financial measures. It presents a variant of the cost-benefit analysis (CBA) and is based on the concept of value (Parker et al., 1988) which deals with the impact of IT on the organizational performance. More, Farbey et al. (1999) mention that information economics method is tailored to cope with particular uncertainties and intangibles found in IS projects.

In practice, information economics method evaluates the project according to many factors that can be customized to the context of the organization. Those factors, in addition to the traditional financial measures, take into account intangible financial measures, business domain values, risks and uncertainties, and technology domain values, risks and uncertainties. Parker et al. (1988) compute the impact of information technology on organizational performance via three evaluation tools: financial evaluation, value evaluation, and risk and uncertainty evaluation.

Hereafter, we will exhibit the information economics evaluation methods and expose the requisite elements.

Table 11 shows the financial evaluation technique.

Table 11 Information Economics Financial Evaluation Elements

Traditional CBA	Enhancement Analysis
Cost and Benefit Analysis	Value linking
	Value acceleration
	Value restructuring
	Innovation valuation

Financial evaluation stands for the financial justification techniques to assess the impact of information systems by calculating a return on investment. At first, a traditional cost and benefit analysis is considered where all tangible costs (e.g., direct investment, and operational costs) and benefits (e.g., reduced operational cost, enhanced productivity) are mentioned. Taking into account the critics concerning the shortcoming of traditional financial measures in its gap to consider intangible factors (e.g., productivity improvement), Parker et al. (1988) propose to add an enhancement analysis to the traditional cost-benefit analysis. This analysis includes four types of intangible benefits realized through information systems: Value linking, value acceleration, value restructuring, and innovation valuation. The enhancement analysis techniques (value linking and value acceleration) allow assessing achieved benefits in departments most often outside of IS. Value restructuring enables the IE to take into consideration the obscure value of indirect linkage existing between a function and the bottom-line performance. Innovation valuation considers the value and benefit of gaining and sustaining competitive advantage, the risk and cost of being first, and the risk and cost of failure, especially in the case of new and unprecedented applications of information systems. It represents the benefits of information systems innovation.

The resulting measure from the financial evaluation is referred to as “enhanced views of return on investments”.

After addressing the intangible gap, information economics expands the traditionally limited view of benefits; it acknowledges the presence of opportunities, risk and uncertainty in the IS projects. Table 12 illustrates the two remaining techniques of the information economics method: the value evaluation and the risk and uncertainty evaluation.

Table 12 Information Economics Value, Risk and Uncertainty evaluation Elements

<table>
<tr><th colspan="2">Value Evaluation</th><th colspan="2">Risk and Uncertainty Evaluation</th></tr>
<tr><td>Organizational Analysis</td><td>Technological Analysis</td><td>Organizational Analysis</td><td>Technological Analysis</td></tr>
<tr><td>Strategic match</td><td rowspan="4">Strategic IS architecture</td><td rowspan="2">Strategic uncertainty</td><td>IS Infrastructure risk</td></tr>
<tr><td>Competitive advantage</td><td rowspan="2">Definitional uncertainty</td></tr>
<tr><td>Management information</td><td rowspan="2">Organizational risk</td></tr>
<tr><td>Competitive response</td><td rowspan="2">Technology uncertainty</td></tr>
<tr><td>Service and Value</td><td></td><td></td></tr>
</table>

Table 12 proves that information economics takes into consideration the value and the risk of the information systems project whether in the organizational domain or in the technological one. The “value evaluation” assesses to which degree elements are appropriate to enhance the business value of IT understanding, it evaluates the different benefits of the information systems.

- Strategic match assesses the degree to which the proposed project responds to established corporate and line-of-business strategies and goals.
- Competitive advantage evaluates the degree to which the proposed project provides an advantage in the marketplace
- Management information is an assessment of a project’s contribution to management’s need for information on core activities
- Competitive response evaluates the degree of business risk associated with not undertaking the project
- Service and value attempts to measure the degree to which customers “like” to do business with the company. It is assessed from the customer’s viewpoint

- Strategic IS architecture assesses the degree to which the proposed projects fits into the overall information systems direction

Having evaluated the value of intangible benefits, information economics propose to assess the costs of risk and uncertainty.

- Strategic uncertainty is an assessment of the degree to which the business strategy is likely to succeed

- Organizational risk is an assessment of the degree to which an information systems project depends on new or untested non-IS corporate or line-of-business skills, management capabilities, or experience

- IS infrastructure risk is an environmental assessment. It assesses the degree to which the entire IS organization is both required to support the project and the degree to which it is prepared to do so

- Definitional uncertainty assesses the specificity of the user's or business' objectives that are communicated to the IS project personnel

- Technology uncertainty assesses a project's dependence on new or untried technologies.

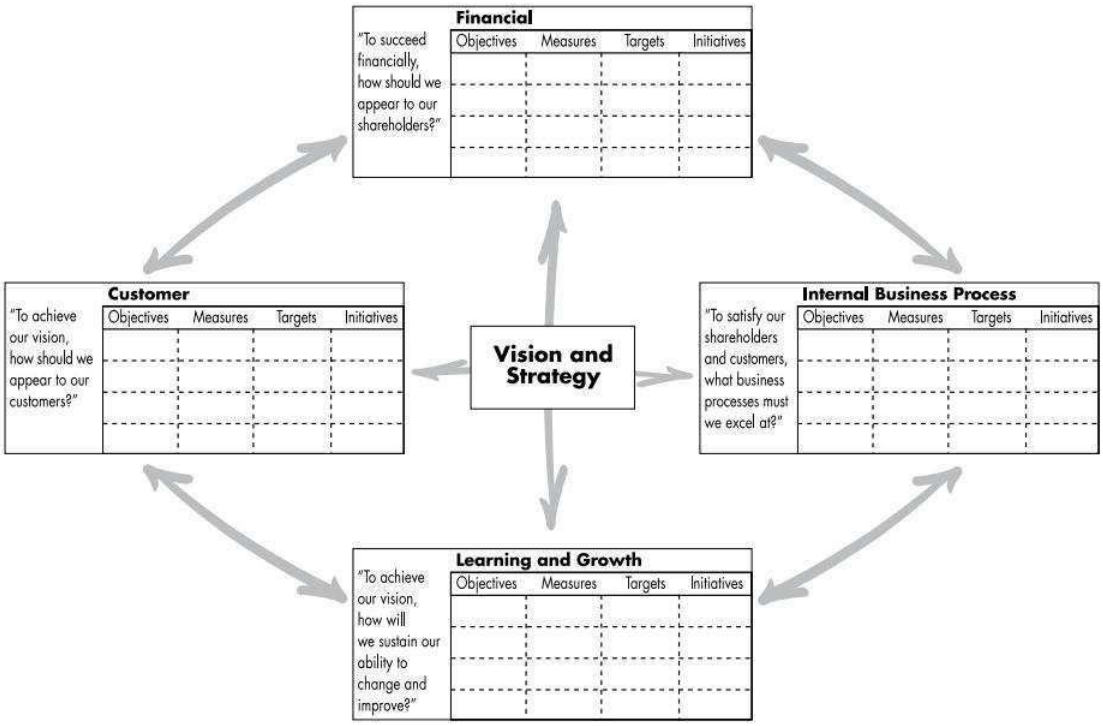
The value, risk and uncertainty evaluation develops a measure of value and an understanding of costs and potential source of failure or risk.

In a general way, information economics retains ROI calculations for tangible benefits and costs which can be directly defined through a traditional cost-benefit process, and puts forward a more complex report based on a ranking and scoring technique for intangibles and risks. In other words, it seeks to identify, to measure and to rank the economic impact of all relevant changes on organizational performance.

Therefore, we can conclude that information economics attempts to bridge the quantitative/qualitative divide and has the capability to recognize "costs" such as strategic and technological uncertainty and organizational risk. However, IE is known to its greatest weakness; the scoring technique with the difficulty to agree on scores (Robson, 2001).

The balanced scorecard (BSC) (Kaplan and Norton, 1992, 1996) is a set of financial and operational measures that provide a balanced presentation of both financial and operational impacts of a system's value. In their framework (Figure 17) of the balanced scorecard, Kaplan and Norton address financial methods of management. They have responded to the growing need for more than financial measures in business success.

Figure 17 Balanced Scorecard Framework



Source: Kaplan and Norton (1992)

The balanced scorecard focuses attention on four perspectives that are most critical to any business: finance, customers, internal processes, and learning and growth. It complements the traditional financial measures with operational measures concerning customer satisfaction, internal processes, and the ability to innovate. By modifying the four perspectives suggested by Kaplan and Norton (1992), BSC can be applied as a tool for assessing business value of various application domains (Fairchild, 2002; Van Grembergen and Amelinckx, 2002; Martinsons et al., 1999).

Van Grembergen and Van Bruggen (1997) were among the earliest adopter of BSC to information systems. Their approach concentrated on the internal IT function rather than on

evaluating business value of information technology. Their four perspectives are: user-orientation, corporate contribution, operational excellence, and future orientation. Martinsons et al. (1999) developed a BSC for information systems that measured and evaluated IS activities from the following perspectives: business value, user orientation, internal process, and future readiness. Van Grembergen and Amelinckx (2002) proposed a generic e-business scorecard, which consists of four perspectives (customer orientation, business contribution, operational excellence, and future orientation) that can be applied to the more specific needs of the evaluation of information systems. The customer orientation shows the impact of the investment on the marketing proposition of the organization. The business contribution can be filled with traditional return on investment calculation. It shows the contribution of the project to the company effectiveness in front of the Board. The operational excellence shows the impact of the investment on the business processes and services. The future orientation perspective shows the future options and possible effects of the investment.

Marr and Schumia (2003) claim that the balanced scorecard is the most influential and dominant concept in the multi-dimensional approach. A success highlighted by Neely (2005, p. 1267) when he noted that "between 30 and 60 per cent of firms have adopted the balanced scorecard" and that BSC has dominated the citation in articles on performance measurement.

Both evoked measures, though some gaps, are considered to be reliable methodologies for the assessment of IS/IT business value (Kim et al., 2003; Wiseman, 1994). While IT evaluation methodologies have been progressing considerably in the last few decades, moving from system level, quantitative efficiency metrics to complex multi-dimensional ones, much remains to be uncovered. For example, the causal relationships issue which suggests that the IT business value should be a result of the interaction among system, the user and the organization. Organizations should focus on identifying critical key factors in meaningful areas. Parker et al. (1988) suggest that in order to assess a project's contribution to the core activities of the business and assess its true business value, the company has to identify its critical success factors.

Critical success factors (CSF) (Rockart, 1979) are a well-known strategic approach to evaluating information systems. It aims to define factors that determine organizational success. Using CSF, executives can express their opinions and identify as to which factors are important and critical to the success of the business.

The CSF method has been used in different areas, however Rockart and Flannery (1981) hinted at the usefulness of the method as a component of strategic planning for information systems or technology. Executives define the critical factors, and then rank them according to their significance and go on to examine the role that IT in general, or a specific system, can play in supporting the executive in dealing with the critical issues.

Dobbins and Donnelly (1998) identified a list of the ways CSF can be applied. They mention that CSF can be used to:

- Identify the key concerns of senior management
- Assist in the development of strategic plans
- Identify key focus areas in each stage of a project life cycle and the major causes of project failure
- Evaluate the reliability of an information system
- Identify business threats and opportunities
- Measure the productivity of people

The importance of the method is that it provides a focus on those issues which the executives regard as important –the ones they will back if it comes to a choice of issues which have to be dealt with. It helps reducing organizational ambiguity; guides force for the organization; reflects the current operating environment of the organization; and are valuable for course correction (Caralli, 2004).

The different evaluation techniques that we have presented above reveal that a company has a wide range of methods and approaches to choose from for the IS business value appraisal. Different evaluation and valuation methodologies reveal different aspects of value and fit a particular situation, thus there is no "one best method" suitable for all information systems evaluation (Hirschheim and Smithson, 1999). Even though, the wide range of evaluation techniques, Silvius (2006) state that we are still far away from a simple and easy-to-understand calculation method unveiling the complete and true value of any investment.

3.3 TOWARDS A FRAME OF IS/IT EVALUATION APPROACH

As established in the previous two parts, there are many approaches containing different measures for the IS/IT evaluation exercise. Some approaches are focusing on harder economical measures and others are focusing on more softer and user-oriented measures. Irani and Love (2008) affirmed that the appropriate evaluation approach would be to go beyond the traditional boundaries of formal evaluation and to associate them with business, user and technology context. However, companies find that the evaluation of an information system represents a complex and difficult approach and that it is confusing and without consensus on what constitutes meaningful appraisal (Small and Chen, 1995). It was referred to as an obscure notion with inherent problems (Blacker and Brown, 1988; Dickson et al., 1988; Willcocks, 1994).

A company can evaluate its information system with many purposes in mind since such systems can have multiple and multidimensional consequences. The impact of an information system can be observed on economic terms (e.g., cost, output, turnover), organizational terms (e.g., changes in organizational structure or procedures), social terms (e.g., social interaction, quality of working life, organizational culture), and management terms (e.g., information access and decision making).

Prior to commencing the IS/IT evaluation approach, the company should define a clear process for undertaking the evaluation. Farbey et al. (1993) underlined the importance of the timing of the evaluation (the "when") in the evaluation approach given that it may influence the choice of the evaluation technique.

The timing of the evaluation approach is crucial for the purpose of the process. As mentioned by Farbey et al. (1993), evaluations are required at different stages in the development of an IS/IT project, and deciding the "when" to evaluate have to be aligned with the purpose of the evaluation. Evaluation of an IS/IT project can take two approaches with regards to the development stage of the IS/IT system: a pre-operational evaluation and a post-operational evaluation (see Figure 18).

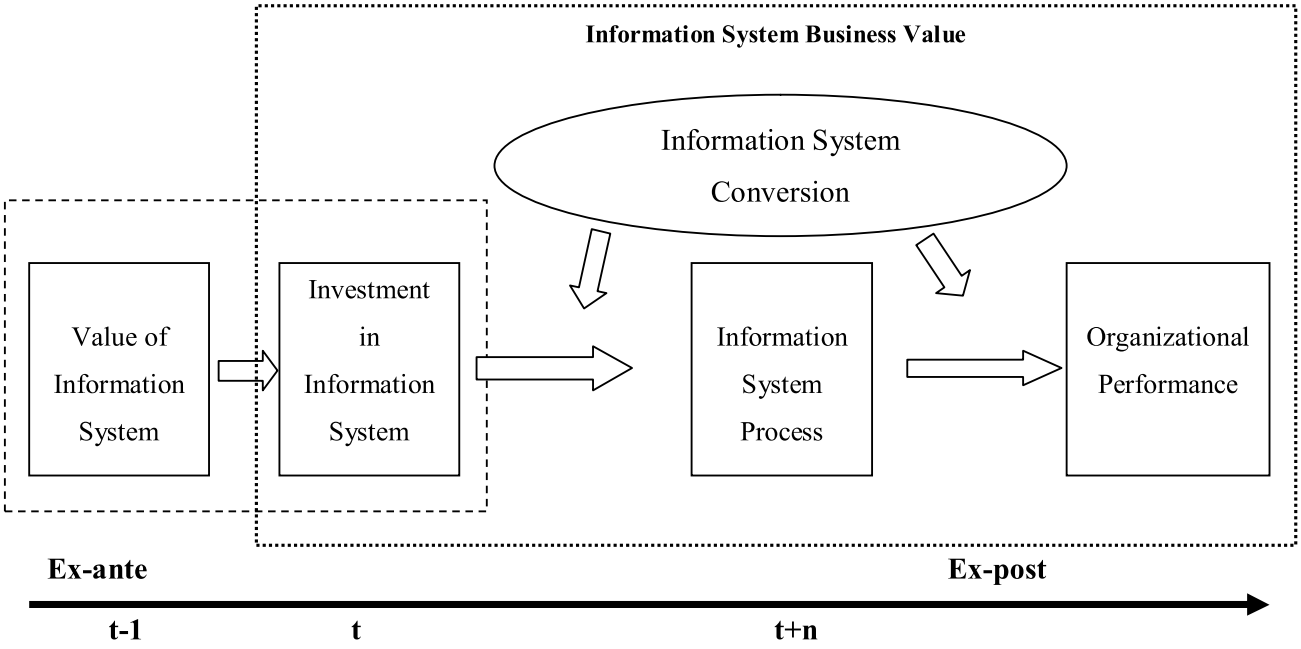
The pre-operational evaluation is also referred to as ex-ante; formative; or pre-implementation evaluation. Ex-ante evaluation consists of justifying the investment in IS rather than evaluating it. In terms of timing, companies make recourse for ex-ante evaluation

before the investment decision is taken; it is a predictive evaluation. The aim of such evaluation is to justify the investment requests by management, and is used to enable the ranking of projects in terms of organizational priorities. Thus, the best suited measures would be the quantitative techniques (Zakierski, 1987) since they permit the appraisal and the ranking of projects and investments. Hence, ex-ante evaluation of information systems would be inappropriate to assess the business value of the system, since it is unable to capture many of the softer benefits that IS/IT yields (Maskell, 1991). Ex-operational evaluation does not take into account the organizational context of the IS/IT system.

The post-operational evaluation, also referred to as ex-post evaluation, contributes to assess the return or the impact of the IS/IT system on the organization. This form of evaluation draws on real rather than projected data, and can be used to justify adoption (Love and Irani, 2001); estimate the direct cost of the system, estimate the tangible benefits of the system (Liu et al., 2003); ensure that the system meets requirements (Irani, 2002); measure the system effectiveness and efficiency (Poon and Wagner, 2001); measure the quality of the system (Eldabi et al., 2003) and to estimate indirect costs and other costs (Love and Irani, 2001).

In reviewing all the previous parts of this chapter, it is evident that there is a substantial degree of agreement among the approaches to assess the business value of IS/IT. It appears that linking IT investment with direct organizational performance is improbable. Mediating factors between IT investment and organizational performance tend to recognize a huge success in the reviewed models. Furthermore, IS/IT evaluation is a process aimed at determining the value of or the contribution gained from such systems (Dressel, 1976; House, 1983). Organizations evaluate their information systems as part of a feasibility study (ex-ante) or investment appraisal (ex-post). Or they may also evaluate their system for the purpose of the understanding or appreciation of the functions, the benefits and the limitations. It is the extension of the evaluation from the ex-ante through the ex-post that allows learning processes to be incorporated (Serafeimidis and Smithson, 2003; Ward and Griffith, 1996). It provides the essential component of the organizational learning process (Smithson and Hirschheim, 1998). Such conclusion enables us to empanel our synthesized model of the IS/IT evaluation approach as shown in Figure 18. This model is more cohesive and can apply to all sorts of IS/IT projects and organizational forms.

Figure 18 Synthesized IT/IS Evaluation Approach Model



This model will be adapted to the conceptual environment of the present research. It permits to justify the problematical inquiry positioning of this research, especially towards the ex-post evaluation. The choice of the theoretical foundation of our research can be justified by the nature of our approach. The post-operational evaluation is carried out after the decision of investing in information system and numerous are the information systems research lodged in that field (e.g., Cron and Sobol, 1983; Mahmood and Mann, 1993; McKeen et al., 1997; Powell, 1992; Weill, 1992).

The findings explored earlier reveal that IS/IT cannot yield to organizational performance, rather it needs the management of success factors to beneficially explore the functionality of the systems. Iacovou et al. (1995) categorize these factors into three categories: technological, individual, and organizational.

In the above model, we suggest that IS investment must undergo a transformational process or processes before resulting in organizational performance. The "information system conversion" (the mix of internal and/or external factors) dictates the extent to which each of these variables translate into organizational performance. Our approach to evaluating the business value of information systems has a multidimensional nature. It permits to take into account the different dimensions that may have an impact (direct or indirect) on the organizational performance following the adoption of an information system.

The importance of a similar approach is that investing in information systems is becoming a strategic obligation and an indispensable to operations rather than a choice for organizations. As a consequence, IS/IT investment justification becomes less important whereas a post-operational evaluation is significant due to its learning contribution and business value appraisal. It enables to determine the appropriate actions to take in order to reach better results.

In the following chapter, we will expose what the CRM literature can add to our theoretical model of IS/IT evaluation approach presented earlier and conclude with the research model of the CRM Business Value.

SECTION III TOWARDS A CRM BUSINESS VALUE RESEARCH MODEL

This chapter presents the research model derived from the conceptual model discussed in the previous chapter. We will also be exhibiting the different variables that correspond with the various components of the conceptual model. As well, a set of hypotheses is proposed based on the relationships among the various variables and in accordance with the research aims.

The proposed research model is an outline that attempts to answer the research question: what is the Business Value of a Customer Relationship Management approach? A derivative objective would be to answer: what are the Critical Success Factors that best support a Customer Relationship Management approach?

Before presenting our research model, we will explore the CRM literature to bring to light to the CRM approach and its business value.

1 THE BUSINESS VALUE OF THE CRM APPROACH

As companies move into the new consumer-driven economy, they have realized that the customers are the real assets and that their success depends on effective customer relationships (Reynolds 2002; SAS 2010; Berkowitz 2001; Ryals and Payne 2001). Since, companies have adopted a more customer focused orientation (Ryals and Knox, 2001).

CRM approaches have emerged as strategic and high priority projects in an increasing number of organizations (Coltman, 2007). Companies are implementing CRM technological initiatives for the reason of the potential benefits and opportunities of CRM in marketing, sales, and service functions. Successful CRM approach is believed to increase customer loyalty, enhance customer retention, acquire new customers and grow the existing relationship with customers. The several perceived benefits have led to the expansion of interest in CRM approaches. According to Gartner Group (2009), the global spending on CRM systems is expected to increase over the coming years. The worldwide CRM

application software market is set for an expected 63.5 percent growth between 2007 and 2012 despite the recession (see Table 13).

Table 13 Worldwide CRM Vendor Revenue (millions of U.S. Dollars)

	2007 Revenue	2008 Revenue	2007-2008 Growth	2012 expected Revenue	2008-2012 expected Growth
Total	8,13	9,147	12,5%	13,3	45,4%

Customer Relationship Management is an organization-wide ongoing process providing a systemic approach to aligning business processes, technological, and the customer. One of the aims of CRM is to increase customer satisfaction and customer loyalty by offering a more responsive and customized service to each customer. The approach of managing customer relationships holds the key to organizational success since it organizes itself around customer segments, fosters customer satisfying behaviors, and implements customer-centric processes (Fusaro, 1999; Maoz, 2000; Puschmann and Rainer, 2001).

Organizations that effectively implement a CRM approach are likely to emerge as market leaders (Gartner Group, 2001) but risks and rewards are equally high. CRM projects can achieve some of the highest ROI but suffer from one of the highest rates of failures; as much as 32 percent and up to 55 percent after one year (Gartner Group, 2001). Boardman (2005) reported that 70 percent of CRM projects are failures, and found that more than half of all companies investing in CRM consider it a disappointment.

CRM expenditures, like in any other IT innovation, represent a considerable investment for organizations that need to be justified. The large body of research on CRM has provided mixed evidence on the business value of CRM, calling for further research on this essential issue (Mithas et al., 2005; Romano and Fjermestad, 2006). The evaluation of information systems, as explored earlier, is a complex process, which includes aspects of efficiency, effectiveness, and competitive advantage within a complex social and political context (Kling and Iacono 1984; Silk, 1990; Smithson and Hirschheim 1998; Willcocks and Lester 1999).

The impact of information systems on organizational performance is emergent rather than planned, and is realized several years after the implementation by the interaction of technology, people, and institutional context (Boddy, 2000). The value of information systems investment is often justified by using mainly notional figures for benefit assessment (Willcocks, 1996). The reason behind such assessment is that there are few reliable measures for evaluating the impact of information systems (Irani, 2002; Kumar, 1990; Willcocks, 2002). In a remedy to such difficulties, Smithson and Hirschheim (1998, p.167) report that much greater care should be taken in ensuring the achievement of planned benefits. Thus the information systems evaluation should recognize the factors leading to the success of the initiative.

1.1 CRM ASSESSMENT

The benefits of a CRM approach are widely referred to in the literature. It helps increasing revenues by enabling up selling and cross selling into existing market segments. CRM helps identify the most profitable customers through the CRM system and then places these customers at the centre of the organization (Reichheld and Sasser, 1990). Kalakota and Robinson (2000) and Tiwana (2001) state that the roles of CRM include the acquisition of new customers, the enhancement of the profitability of existing customers, and retention of profitable customers. Other benefits include the decline of costs by eliminating errors that occur from multiple uncoordinated interaction points (Elliott, 1997). However, in order for the CRM initiative to be successful, researchers have argued that a number of organizational prerequisites are necessary.

Many researchers leant over the assessment of the CRM or the business value of the CRM approach. Some of them assessed the CRM by means of performance enhancement indicators (e.g., Greenberg, 2004; Peppers and Rogers, 2004; Shanks et al., 2009) while other researchers tried to identify key elements indispensable to CRM success (e.g., Bohling et al., 2006; Mendoza et al., 2007); however, most of these research have evaluated one or a limited number of the CRM approach.

Greenberg (2004) and Peppers and Rogers (2004) considered the return on investment of the CRM. They focused on demonstrating how the initiative will affect key measures that are important to the company financially. In example, Greenberg (2004) proposed three broad

classes for evaluating the customer relationship. They are customer specific metrics, diagnostic metrics, and outcome metrics. Inside those metrics, we can find other quantified benefits such as reduced process or transaction costs, increased cross-selling, customer satisfaction, or customer behavior (Peppers and Rogers, 2004). According to the cited authors, the previous measurements can quantify the most fundamental benefit derived from the CRM initiative which is the overall value of the enterprise's customer base. In spite of the interests that can bring to the company, "very few companies ever made any attempt to quantify them" (Peppers and Rogers, 2004, p.300).

Given that it is difficult to evaluate the experience of the company in terms of brand equity, customer behavior… (*refer to the previous paragraph*) Shanks et al. (2009) proposed a framework for measuring CRM benefits. In fact, a critical success factor for the CRM is to understand and recognize the business benefits of the initiative (Wilson et al., 2002). Benefits (tangible and intangible) were identified from the existing literature and an empirical study involving interviews and a focus group involving experience practitioners. The retained benefits have been categorized into three classifications formally used in the classifications of information systems benefits (Silk, 1990). Consequently, the introduced framework describes and categorizes CRM benefits for operational, tactical, and strategic levels of management. Each category was discussed and indicators have been provided for each benefit. The following table recapitulates the CRM benefits framework.

Table 14 CRM Benefits Framework

Management Level Benefits	Related Benefits	Indicators
Benefits for operational level of management	Improved customer data management	- Improved accuracy of customer information - Improved completeness of customer information - Decrease in the number of duplicates records - Reduction in time taken to access complete customer information - Increase in timeliness of information

		- Improved customer data history
	Improved process management	- Reduction in the number of redundant processes - Increase in efficiency at different stages of managing the customer - Increase in efficiency in assignment of tasks
	Improved customer service	- Increased number of resolutions at first point of contact - Reduced handling time of enquiries - Increased access to high quality information at the point of customer contact
	Empowerment of staff	- Increased conversion rate of prospects - Increased staff satisfaction level - Reduction in administration of sales staff
	Improved productivity	- Reduction in lost opportunity costs - Reduction in costs for lead generation, marketing, customer service and sales - Increase in the number of customers handled per sales representative
	Enables real-time responsiveness to trends	- Increase in number of cross sales - Increase in number op up-sales - Earlier detection of trends - Increased number of effective campaigns
Benefits for tactical level of management	Facilitates market segmentation	- Increase in campaign response rates - Increase in identification and utilization of business

		opportunities - Increase in target marketing driven revenue - Increase in profitability of market segments - Increase in number of target marketing initiatives
	Facilitates key account management	- Increase in average customer lifetime value - Increase in number of customers with high lifetime value - Reduction in number of customers with credit risk
	Improved channel management	- Increase in number of transactions through cost-effective channels - Increase in the number of customer self-service activities - Reduction in the usage of cost-ineffective channels - Reduction in channel cost per sale
	Improved analysis, reporting and forecasting	- Improvement in monitoring of KPIs (Key Performance Indicators) - Improvement in reporting at customer rather than account level - Increase in the number of relevant reports available
Benefits for strategic level of management	Improved customer satisfaction	- Improved value perception - Increase in period of customer loyalty - Increase in the number of repeat customers - Reduced number of complaints - Increase in word of mouth

		recommendations
	Improved business performance	- Increase in profit - Increase in share of wallet - Increase in customer retention - Increase in revenue per customer - Increase in sales - Increase in the number of customers
	Improved value-added partnerships	- Increase in internal/external value-added linkages
	Improved innovative use of CRM systems	- Increase in CRM system driven innovation

Adapted from Shanks et al., 2009

Shanks et al. (2009) proposed a framework for the CRM benefits which provides a comprehensive basis for conducting post-implementation review of CRM systems and for establishing benchmarks for effective CRM systems. The use of the framework, as mentioned by the authors, enables a comparison of expected and realized benefits. It determines the success or failure of CRM system in terms of benefits realization.

As earlier findings have revealed, the IS/IT cannot yield to organizational performance, and further research is needed in questioning the organizational factors responsible for a beneficial information systems initiatives, many researchers tried to identify key areas that are essential for the organization in order to succeed in its CRM approach.

2 SUCCEEDING THE CRM APPROACH

Among the numerous authors addressing the key indispensable elements to CRM success, Mendoza et al. (2007) and King and Burgess (2008) have had a holistic view to propose models of CRM key elements.

Mendoza et al. (2007) have proposed, justified, and validated a model based on critical success factors (CSFs) for implementation and diagnosis of CRM strategy. Their model is confirmed by a set of 13 CSFs with their 55 corresponding metrics, which serves as

a guide for organizations wishing to apply CRM strategy. These factors cover the three key aspects of every CRM strategy: human factor, processes, and technology.

King and Burgess (2008) have proposed a model to improve understanding of large-scale information systems in general and CRM in particular. They identified nine CSFs classified into three categories: The organizational context in which we can find four CSFs (knowledge management capabilities, willingness to share data, willingness to change processes, and technological readiness); the project organization assembled by four CSFs (communication of CRM strategy, culture change capability, process change capability, and systems integration capability); and the supporters category in which one CSF, the top management support.

A large body of work identifying and describing critical success factors for information systems in general exists whereas King and Burgess (2008, p. 430) reveal that "a small emerging literature on CRM CSFs". Many research have been documented where the use of CRM systems has led to a significant improvement of the effectiveness of the firm's customer relationships and performance but few have addressed the critical success factors of a CRM approach. Our research will tend to improve understanding of large-scale information systems success in general and CRM success in particular.

Our research inquiry concerns the enhancement of information systems success comprehension. To position our study according to our synthesized IS/IT evaluation approach model (Figure 18), the research is positioned within the post-implementation techniques and specifies the requirements for a successful CRM approach.

2.1 THE CRM PREREQUISITE

In the information technology, marketing or management literature, the term CRM Success is not well defined, and this can be attributed to the many views of the CRM as well as the different CRM approaches. In the information systems literature, research on success factors is an area which receives constantly attention. Boynton and Zmud (1984, p.17) define critical success factors (CSF) as "those few things that must go well to ensure success for a manager of an organization".

The IT research focuses primarily on conceptualizing and understanding CRM technology implementation issues (e.g., Brown and Vessey, 2003; Goodhue et al., 2002; Plakoyiannaki and Tzokas, 2002), organizational success factors of CRM systems (e.g., Bose, 2002; Fjermestad and Romano, 2003; Kim et al., 2002; Rigby et al., 2002; Romano, 2000; Yu, 2001), and improving the use and adoption of CRM systems (Ahn et al., 2003). Other researchers have linked CRM success alongside user satisfaction, the dimensions of systems quality and information quality, by means of the IS Success Model (DeLone and McLean, 1992, 2003; Kim et al., 2002). We can find also in the IT literature studies attempting to link CRM success with business performance or relationship performance metrics such as market share, customer retention and customer satisfaction (e.g., Croteau and Li, 2003).

In contrast, marketing research has primarily been focused on the impact of CRM on customer relationship measures (e.g., Day, 2000; Reinarts and Kumar, 2003). Marketing researchers have also found that CRM technology tends to positively influence business performance and customer satisfaction measures (e.g., Gummesson, 2004; Reinartz et al., 2004). In the attempt to understand the CRM success, CRM marketing research links CRM success directly to performance measures, while also exploring the relation of Relational Marketing implementation and technology efficiency (e.g., Lemon et al., 2002; Peppard, 2000).

The management literature appears to have a more general view of CRM success, focusing on how to use CRM as a business process leading to growth and improving economic performance (e.g., Reinartz et al., 2004; Rigby and Ledingham, 2004; Seybold, 2001) or how to support customer oriented strategies (e.g., Reinartz and Kumar, 2002; Winer, 2001). Other CRM research suggests that CRM success implies successful CRM system implementation (e.g., Brown and Vessey, 2003; Ling and Yen, 2001). Others link the success to CRM's ability to support a market oriented approach (e.g., Gummesson, 2004).

It is evident that the mix of results reported for the CRM approach can be partly explained by the incongruity of CRM models and the CRM standing. The CRM have been compared to the early days of e-commerce or EDI or ERP implementation, signifying that it may only be a matter of time before the factors which make CRM approach successful are understood and identified.

Since the beginning of this research, various articles on CRM success factors and metrics have been published. This shows, on the one hand, that there is interest in the subject, and on the other that the search for success factors is in the early stages. Hereafter, in the following table, we summarize the success factors stated in the various articles.

Table 15 CRM Success Factors in Literature

Author (s)	Success Factors and Potential Risks of Failure
Alt and Puschmann, 2006	Support from top management Organization according to customer segments Channel integration System selection among market leaders
Behr, 2001	Orientation toward customer groups and segments Customer-oriented organization Selection of appropriate technology Definition of metrics for customer orientation
Bose, 2002	Commitment from senior level management Identification of customer interaction points and decision points Customer chooses the type of interaction Selecting experienced vendors or consulting firms Stagewise system implementation Data integrity and integration with legacy systems Expanding customer data profile to include non-transactional information Scalable system to meet changing (future) needs Precise selection of software packages Training of users Continual evaluation of system performance
Colgate and Danaher, 2000	Importance of internal marketing Employee empowerment

	Profitable target segments Business strategy emphasizing service Sufficient levels of involvement High experience or credence qualities Ability to calculate relationship performance
Corner and Hinton, 2002	Politics and vested interest Need for mobility Inadequate funding
Croteau and Li, 2003	Operational perceived benefits Strategic perceived benefits Top management support Technological readiness Knowledge management capabilities
Fjermestad and Romano, 2003	Usability Resistance
Goodhue et al., 2002	Implementing strategically beneficial applications Improving the underlying data infrastructure Changing the way the business is run
Kim et al., 2002	Organizational factors (champion, management support, resource) Process factors (CRM strategy, CRM process) Technological factors (complexity, compatibility, source systems, channel integration) Project factors (user participation, project team skills)
King and Burgess, 2008	Top management support Communication of CRM strategy Knowledge management capabilities Willingness to share data Willingness to change processes

	Technological readiness Culture change/customer orientation Process change capability Systems integration capability
Ling and Yen, 2001	Phased implementations Teaming/dealing with the systems integrator Managing the change No surprises (involving end users from the beginning) Team structure and executive sponsorship Identification of CRM infrastructure projects Standards for customer data and customer processes Ability of the business areas and IT to collaborate Formalized ROI approach
Mendoza et al., 2007	Senior management commitment Creation of a multidisciplinary team Objectives definition Inter-departmental integration Communication of the CRM strategy to the staff Staff commitment Customer information management Customer service Sales automation Marketing automation Support for operational management Customer contacts management Information systems integration
Plakoyiannaki and Tzokas, 2002	Lack of learning and market orientation capabilities Lack of integration capabilities

	Lack of analytical capabilities Lack of operational capabilities Lack of direction capabilities
Reinecke et al., 2002	Integrated CRM approach Closed management loop Segmentation Coherence of customer acquisition and retention Resource orientation
Rigby et al., 2002	Create customer strategy before CRM implementation Change your organization to match before rolling out CRM More CRM technology is not better Wooing, not stalking, customers (Relationships are two-way)
Roberts et al., 2005	Planning input from all business units Presence of strategic goals Achieving operating efficiency Organizational alignment Organizational structures and incentives Train end users Modular implementation Organizational change management Central coordination of project Top management support Organizational culture High degree of CRM process implementation Centralized CRM systems Centralized customer database Sophistication of CRM technology (negative impact) Organizational controls

Wilson et al., 2002	Gain champion/sponsor Define approval procedures which allow for uncertainty Gain board awareness of strategic potential of IT Organize around customer Involve user interactively in system design Design for flexibility Rapid strategy/action loops
Zablah et al., 2004	Customer orientation Long-term orientation Cross-functional integration Organization-wide commitment Specification of customer data ownership CRM training/specialized skill development Presence of CRM champion Top management buy-in Compensation structure congruent with CRM philosophy Focus on change management Phased technology/strategy implementation Failure to understand benefits Poor data quality/quantity Adequate performance metrics Adequate financial commitment

An overview of the table above, leads to the following comments: introducing a CRM approach, is similar to introducing an information system, where this introduction depends on organizational, people and technological factors.

Identifying critical success factors is a rational approach subject to individuals. In our research, factors identify the characteristics of a CRM process, approach and tend to clarify the identification of prerequisite key elements essential to its development.

As we have previously mentioned, prior to undertaking an information systems diagnostic, we should define the factors taken into account in this investigation. Those factors are the resources used in the information systems process, factors that are essential in the information systems conversion in order to attain the looked-for performance.

3 RESEARCH VARIABLES

In this section, we will be illuminating the variables that operationalise the conceptual research model components. We will start with the Customer Relationship Management conversion that represents the required factors for this information system. Secondly, we will define the CRM Process, and finally we will present the organizational performance variable.

The first group of variables which consists the conversion process will be divided into three major groups of Critical Success Factors (CSF): Organizational CSF, Orientation CSF, and Technological CSF.

The table below exhibits the three groups of variables and links them with previous CRM research.

TABLE 16 MODEL VARIABLES AND PREVIOUS CRM RESEARCH

Construct/Variable	Previous Research
Organizational CSF	Becket et al., 2009; Finnegan and Currie, 2010 ; Ko et al., 2008; Sullivan, 1990
Top Management Support	
Organizational System	
Orientation CSF	Day and Van de Bulte, 2002; Chang, 2007; Finnegan and Currie, 2010; Olsen and Connolly, 2000
Customer Orientation	
Competitor Orientation	
Inter-Functional Coordination	
Technological CSF	Finnegan and Currie, 2010 ; Becket et al., 2009
End-User System Satisfaction	
Information Systems Department Effectiveness	
Information Systems Department Support	

3.1 ORGANIZATIONAL CSF COMPONENT

The organizational critical success factors are resources that characterize the organization from a management view and from a structural view. Because of their significant influence on information systems processes (Ko et al., 2008; Sullivan, 1990), organizational factors are essentials for the CRM Conversion.

TOP MANAGEMENT SUPPORT

Top management support is widely accepted as a critical success factor in the management information systems (MIS) literature (Croteau and Li, 2003; Jarvenpaa and Ives 1991). The support is often transferred by a positive perception of the strategic role as evidenced by the actions of top management (Jarvenpaa and Ives, 1991). In supporting the CRM initiative, the top management sends a message for the organization about the importance and the place of the CRM in the hotel. The support is not proved only through financial resources, but also by the priority the top management affects to the CRM system, and the changes they induce. When top management is aware of the opportunities that a system can offer to the organization, the support will be higher (Kearns, 2006). Top management is considered an important factor to the CRM approach, because the CRM is an organizational-wide approach that touches every corner of the hotel.

CRM success largely depends on internal factors; technological and organizational. But when considering sophisticated and complex system as CRM and ERP, most of the firms employ consultants and/or vendors to help them successfully attain the profitable stage of the system.

This construct is dedicated to evaluate the level of commitment of the top management towards the CRM approach.

ORGANIZATIONAL SYSTEM

Organizational system represents the structure for the behaviors, the guide of day-to-day activities. It is the climate of the organization. Schneider (1987) had distinguished between the climate and culture of the organization. “The climate refers to the ways organizations operationalise the themes that pervade everyday behavior”, while the culture

"refers to the history and norms and values that members believe underlie climate" (Deshpandé et al., 1993). Thus every culture should be accompanied with its own system. This climate should provide the context in which every organizational action of the hotel is driven by customers' needs. It must encourage the CRM approach. Day and Van de Bulte (2002) noted that the context in which the customer information and knowledge flows are embedded, activated and used is a prerequisite for the customer relating capability, and is the most influential component of this capability.

Having an appropriate organizational system, organizations will be more able to disseminate customer knowledge and customer orientation within the organization (Day and Montgomery, 1999; Kohli and Jaworski, 1990), helping the organization to be more reactive to customer needs, therefore to market changes.

Creating an appropriate organizational system is very essential in spreading the customer importance throughout the organization. Nevertheless, this environment should receive the right support by management (Becker et al., 2009; Day, 1994; Kohli and Jaworski, 1990; Narver and Slater, 1990). By supporting the climate, top management will reveal their engagement and commitment towards the CRM approach.

The organizational system concerns the formal structures embedded around the customers.

3.2 ORIENTATION CSF COMPONENT

The CRM literature supports the view that organizational culture is very important for the success of a CRM initiative. In fact, many authors underline the importance of a customer oriented organizational culture in gaining competitive advantage (Day and Van de Bulte, 2002; Chang, 2007), since an intangible asset like the culture of the organization may enhance the competitive advantage of a firm.

The organization's culture is the deeply embedded values and beliefs that establish the norms for appropriate behavior (Deshpandé et al., 1993). Having a customer oriented culture, means that the company is committed to create and deliver a superior customer value. This culture provides behavioral norms for gathering, sharing, and responding to market information. It is a sequence of information-based behaviors and a culture of customer and

competitor orientations and inter-functional coordination shared across the organization (Deshpandé et al., 1993; Jaworski and Kohli, 1993; Narver and Slater, 1990, 2000).

An organizational culture dedicated to customer is an essential feature of a service organization, especially hotels, where the guest occupies the highest place in the organization and where all the activities spin around him. A hotel culture whereby every customer interaction is perceived as a learning experience and each customer contact as a relationship building opportunity and a chance to collect new information about hotels' guest is required for a successful CRM approach (Olsen and Connolly, 2000).

But, it is impossible to create and deliver the ideal experience for guests through only the culture; this culture must be formalized. Behaviors should be supported and need to be operative through a system; the organizational system.

As stated before, the orientation CSF component is related to the behaviors. Behavioral components as stated by Narver and Slater (1990) fall into three categories: customer orientation, competitor orientation, and inter-functional coordination. Consequently, this component will be measured via the three variables listed before and in compliance with other studies (Deng and Dart, 1994; Helfert et al., 2002; Narver and Slater, 1990).

CUSTOMER ORIENTATION

Customer orientation: refers to the hotel's focus on the customer. It is the ability to demonstrate and show commitment to customers. It addresses the ongoing understanding and meeting customer's evolving needs while creating services that offer value to the customers and providing follow-up services.

This variable will enable us to evaluate the degree to which the hotel is customer oriented.

COMPETITOR ORIENTATION

Competitor orientation: represents a firm's focus on competitor activity, the ongoing collection and dissemination of competitor information throughout the business. It represents the ability of the hotel to respond rapidly to competitors' actions.

This variable consists of measuring the extent to which the hotel focuses on the competitors.

INTER-FUNCTIONAL COORDINATION

Inter-functional coordination: it is the ability to synchronize, coordinate and leverage the creation and delivery of superior customer value between and within departments.

This variable is intended to assess the level of inter-functional coordination towards servicing the customer.

Although the term orientation (e.g., market orientation, organizational culture) has been defined in numerous ways (Kohli and Jaworski, 1990), it has been found that it has a positive effect on the CRM approach as well as on business performance (Deshpandé et al., 1993).

3.3 TECHNOLOGICAL CSF COMPONENT

Although our CRM approach is not purely a technology, but factors related to the technological aspect of the approach have long been recognized as an enabler for the CRM conversion as well as for any information system conversion. Factors related to the technological component are: End-User System Satisfaction, and Information Systems Support.

END-USER SYSTEM SATISFACTION

Many IS researchers have undermined the critical role of end-user in the success of any system (e.g., Doll and Torkzadeh, 1988; Ives and Olson, 1984; Ives et al., 1983).

In the information systems literature, two conceptualizations correspond to the End-User System Satisfaction. Either the user is satisfied with the information that the system provides (Blake et al., 1983) or the overall satisfaction with the entire system (Doll and Torkzadeh, 1988). In this research, we adopt the broader meaning of End-User System Satisfaction.

The End-User System Satisfaction is closely linked to the information systems success (Bailey and Pearson, 1983). Doll and Torkzadeh (1988, p.261) defined the End-User Systems Satisfaction as "the affective attitude towards a specific computer application by someone who interacts with the application directly". The End-User System Satisfaction factor is the most commonly studied in IS research (DeLone and McLean, 1992). And the results of IS research is that End-User System Satisfaction has a positive relationship with organizational performance and with systems' success.

This variable will measure the extent of satisfaction end-users perceive according to the CRM system.

INFORMATION SYSTEMS DEPARTMENT SUPPORT AND EFFECTIVENESS

Like any information system, the CRM approach needs an ongoing support and organizational talents make up a very important part of the CRM program. Companies realize that employees practicing the CRM approach need to be introduced to new processes, knowledge and technologies (Plakoyiannaki and Tzokas, 2002) and offering support to the entire CRM approach is crucial for its success. This support is defined by the effectiveness in performing the information requirements analysis, and effectiveness in recommending the suitable system and in effectively managing its implementation.

In five stars hotel, the support concerning the information systems is provided by the internal information systems department. The IS department, within the organization, has expanded its services from a simple technological division to a service provider division. It has a consultancy job and a support job. As its role is becoming more and more important, its effectiveness in providing the adequate support is linked to the IS system (Moad, 1989; Pitt et al., 1995; Rockart, 1982) and to the CRM approach success. The role of the information systems department is defined also by the adequacy it can deliver for the technical support during and after the implementation.

The IS department is an in-house IS expertise for the organization and its role is similar to the external expertise's role. The major sources of external expertise are the consultant and the vendor (Thong et al., 1997), and thus the IS department should offer the same service the external expertise can offer.

Recent studies in the IS have highlighted the importance that can have the external expertise on the IS effectiveness. In fact, many researchers have provided evidence that consultant and/or vendor expertise are a determinant of IS effectiveness is businesses (Chang, 2004; Kouki et al., 2009). Their duties are to help and provide businesses implementing effective information systems. They represent the access and the facilitator for firms towards the customer relationship management especially in emerging countries where the lack of IS talent is highlighted.

The external expertise will escort the company through the entire CRM life cycle. As Greenberg (2004, p.513) said "when you buy an application, you buy the vendor". During the use of the CRM system, the company will always get in contact with its consultant/vendor for support and for upgrade. The advantage of having a consultant/vendor is that they have vast experience that runs deep in not just applications, but methodology, processes, and industry specific expertise.

The hotel may engage external expertise according to three approaches: the consultant-vendor approach, the vendor-only approach, and the business-vendor approach. In the first approach, the hotel delegates the analysis and the implementation assistance to the consultant and ask a separate vendor to provide the hardware and software solutions. The second approach is where the consultant and the vendor are one. The third approach, is when the hotel is the consultant of its own, and only will ask a vendor to provide hardware and software solutions. The role of the external expertise is found to be crucial not just for the implementation stage of an IS system, but also during the post-implementation phase (Plant and Willcocks, 2007). In our case, the hotel will delegate the CRM implementation to the IS department which will play the role of the consultant and the vendor.

Since the internal expertise (IS Department) and the external expertise (consultant and vendor) have similar roles, we will consider in our research that the internal expertise role can be divided into two types: the consultant and the vendor.

Those two variables will enable us to measure if the IS department of the hotel is accomplishing its role of consultant and vendor evoked at the beginning of this part.

3.4 CRM PROCESS

Obviously, the first requirement for a successful CRM approach is the factors defined previously. Nonetheless, the CRM process is a critical success factors for the success of the approach. As defined in the earlier chapter, the CRM process consists of two major functions: the analysis and the action. The analysis encompasses the back-office functions, while the action functions are more front-office oriented.

The CRM process represents the core of this approach. In the CRM literature, three processes areas have become generally accepted (Fayerman, 2002): Collaborative CRM, Analytical CRM, and Operational CRM. Those three processes are the foundation of each CRM process and are also critical success factors for the customer relationship management approach.

COLLABORATIVE CRM

It concentrates on the interaction with the customer using coordinated mix of communication channels. This communication with customers involves the sharing of information between the hotel and the customer.

During this activity, the information undergoes the reciprocity process which means that the action taken by one exchange partner is matched by the other. It is the process that enables the customer to interact and share information with the firm and enables the firm to respond to the customer (Jayachandran et al., 2005). A key activity for the collaborative CRM is the interaction and the reciprocity with the customer in order to acquire information.

This activity enables the company to create detailed customer's profile to further operational use. Research emphasizes the importance of information reciprocity and information capture in the building of strong relationships (Jayachandran et al., 2005; Mohr et al., 1996). The CRM Collaborative activity serves as a basis for the future CRM actions.

This component of the CRM process assesses the interaction, the information capture, and the reciprocity with each customer.

ANALYTICAL CRM

It builds on operational and collaborative CRM and establishes information on customer segments, behaviors, and value using statistical methods. The basic activity of a CRM analytical process is to enhance the information integration and information access throughout the entire organization.

The information integration ensures a better information management (Favier and Trahand, 2007) leading to consistent and efficient communication.

Integrating all acquired information, analyzing it and disseminating this information across all CRM departments is a crucial phase in sustaining customer relationships. This activity is a facilitator for the operational CRM activity because it prepares information for supporting the actionable activity.

This construct of the CRM process evaluates the hotel's information integration and dissemination across the entire CRM access point.

OPERATIONAL CRM

The Operational CRM activity consists of an action-oriented use of the customer information. In order to build and manage customer relationships, organizations should apply this information in a manner consistent with what customers await. It seeks to achieve a personal relationship with the customer through tailored products and services.

This construct assesses the operational use of the customer information captured and analyzed in the former CRM activities (Collaborative and Analytical).

3.5 ORGANIZATIONAL PERCEIVED PERFORMANCE

The business value of the CRM is the benefits that the organization will receive through the application of the CRM approach. Performance evaluation is generally carried out by comparison with subjective or quantitative standards. Nevertheless in changing environments, Eccles and Pyburn (1992) note that traditional financial measures limit the rapidity with which feedback can be obtained, and speculate that non-financial indicators will become more important.

When evaluating the CRM approach, measures should focus on the main concern of the approach, the customer. The nature of CRM aims to maximize customer value in the long term. As Kalakota and Robinson (2000) and Tiwana (2001) state that the role of the CRM includes customer retention and satisfaction.

This construct derive from the customer-focused evaluation framework of Julta et al. (2001) and which was adopted and validated in a CRM context by Croteau and Li (2003). The three concentration of the organizational perceived performance affected by the CRM are the customer retention, customer satisfaction, and customer profitability. This construct represents the organizations' level of satisfaction due to the practiced CRM Approach.

The perceived performance construct evaluate the impact of the CRM approach on the organization. It assesses the perceived performance of the CRM approach from the point of view of its users.

4 RESEARCH HYPOTHESES

After presenting the maintained variables for our research concerning the Business Value of the CRM approach, we will formulate the relationships among those various variables into hypotheses. Those hypotheses are distributed according to the two research model approaches: the Critical Success Factors of the CRM Approach; and the Business Value of the CRM Approach.

4.1 CRITICAL SUCCESS FACTORS PART

All critical success factors constructs (Organizational, Orientation, and Technological) have a positive and direct influence on the different CRM processes (Collaborative, Analytical, and Operational).

As mentioned before, based on our analysis of the literature on CRM, we chose to select the mentioned factors as the main focus on our research. In the previous chapter and in the "CRM Prerequisite" section, we have listed all the factors identified in the literature that are critical to CRM success. The only variables that were not applied in a CRM research are the variables linked to the IS Department effectiveness. They are Consultant effectiveness and Vendor support. Those two variables were identified as important factors to the success

of any information systems, and especially integrated systems such as ERP (Ifinedo, 2006; Kouki et al., 2006; Thong et al., 1994).

Hereafter, we will cite the hypotheses associated with the critical success factors (CSF) part.

- H1: the Organizational CSF influence directly and positively the CRM Collaborative activity.
- H2: the Organizational CSF influence directly and positively the CRM Analytical activity.
- H3: the Organizational CSF influence directly and positively the CRM Operational activity.
- H4: the Orientation CSF influence directly and positively the CRM Collaborative activity.
- H5: the Orientation CSF influence directly and positively the CRM Analytical activity.
- H6: the Orientation CSF influence directly and positively the CRM Operational activity.
- H7: the Technological CSF influence directly and positively the CRM Collaborative activity.
- H8: the Technological CSF influence directly and positively the CRM Analytical activity.
- H9: the Technological CSF influence directly and positively the CRM Operational activity.
- H10: the Collaborative CRM activity influences directly and positively the CRM Operational activity.
- H11: the Analytical CRM activity influences directly and positively the CRM Operational activity.

4.2 BUSINESS IMPACT PART

The business impact part of the research model refers to the relationships between the variables defining the CSF and the CRM Process on the one hand, and the perceived performance on the other hand. The associated hypotheses are:

- H12: the CRM Collaborative activity influences directly and positively the organizational perceived performance.
- H13: the CRM Analytical activity influences directly and positively the organizational perceived performance.
- H14: the CRM Operational activity influences directly and positively the organizational perceived performance.
- H15: the Organizational CSF influence directly and positively the organizational perceived performance.
- H16: the Orientation CSF influence directly and positively the organizational perceived performance.
- H17: the Technological CSF influence directly and positively the organizational perceived performance.

In the next section, we will present the research model with all constructs and relationships.

5 RESEARCH MODEL

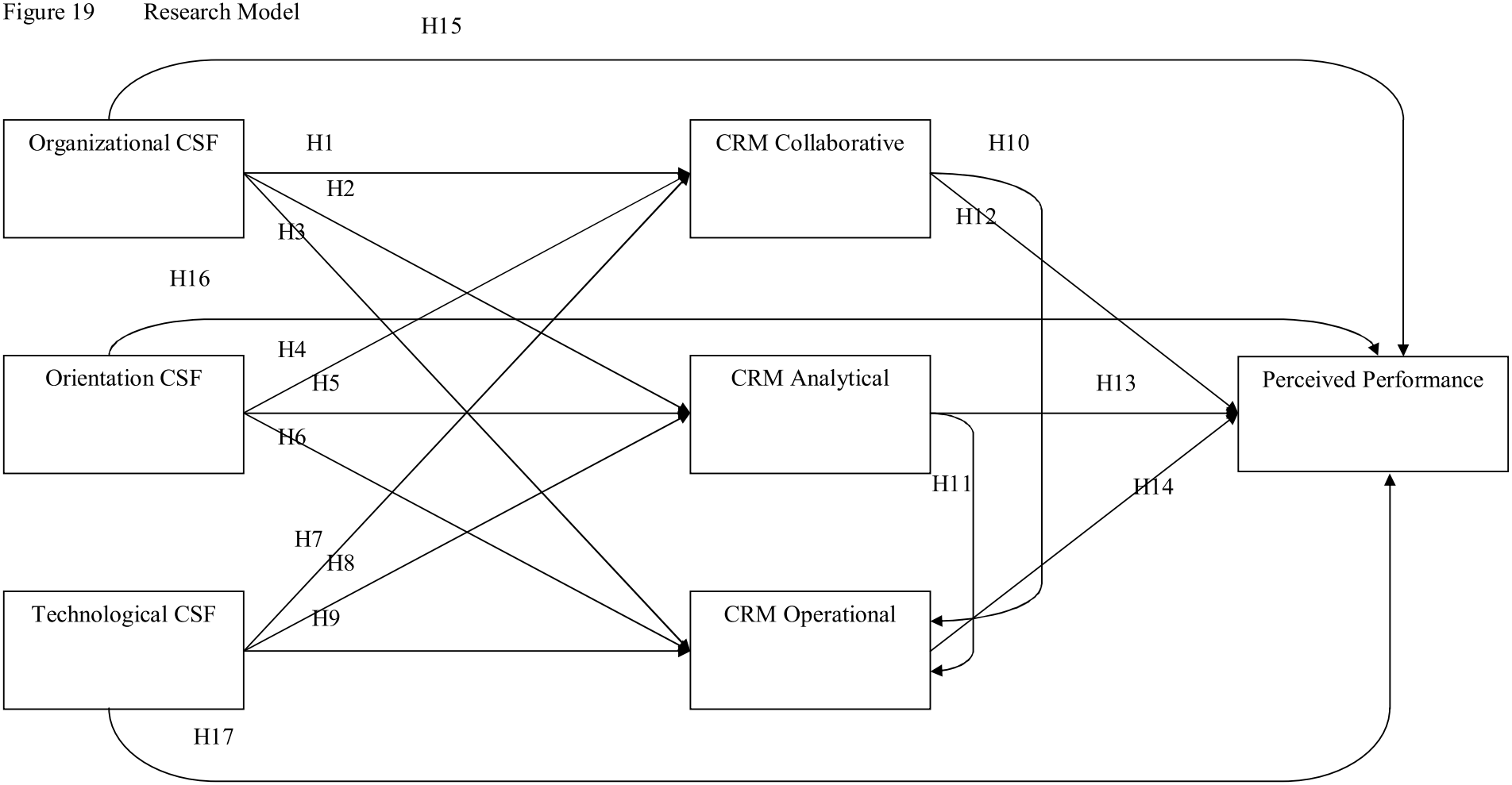
The research model is illustrated next in Figure 19. The research model corresponds to the conceptual model presented in the previous chapter.

The conceptual model is a process-oriented model that represents the Business Value of an Information System and outlines the process involved in the evaluation of the information systems. The research model converts the conceptual model from an evaluative framework into a testable model applied on CRM approach.

The conceptual model is operationalized through a specific set of variables and the relationships among those variables are specified in the form of hypotheses. Although many factors are important and may have an effect on the CRM Approach and its Business Value, it is necessary to limit the number of factors considered in the study. Hence, only for those factors that are significant and directly relevant for the purpose of this study and that are justifiable and supported by prior research are included in the research model.

Variables in the research model correspond to and operationalise the various components in the conceptual model. Three variables, Organizational CSF, Orientation CSF, and Technological CSF are used to capture the characteristics of the essentials to the CRM conversion. Three variables, CRM Collaborative, CRM Analytical, and CRM Operational are used to capture the internal conversion of the CRM activity. Measures of the organizational perceived performance are used to capture the impact of the whole CRM approach. The first order (CSF) and second order (CRM activity) of variables are used to capture the CRM Conversion. The previous two groups of variables and the organizational perceived performance variable are used to assess the business value of the customer relationship management approach and to evaluate it.

Figure 19 Research Model



The section "Towards a CRM Business Value Research Model" presents a synthesis of section "Understanding the Customer Relationship Management" and section "Business Value Theoretical and Conceptual Foundation". In this section, we have delineated the CRM prerequisites, and have developed the research model. This research model is based on two parts. The first part investigates the critical success factors of the CRM approach, and questions an evaluation technique. The second part of the research model investigates the impact of the CRM Approach on the organizational performance. Each part of the model was defined through a set of hypotheses. The general model, as well as the proposed hypotheses will be tested in a subsequent section. In the next section, the research methodology is presented.

SECTION IV RESEARCH METHODOLOGY

Following the development of the research model and hypotheses in Section 3, the purpose of this chapter is to discuss the methods used for refining, validating and testing the model. The main topics presented include: choice of research methodology, exploratory research phase, the hospitality sector, explanatory phase of research, research instrument, and the data analysis and hypothesis-testing procedures.

All scientific research begins with a topic and question of interest (Janesick, 1994). According to Kerlinger (1986), the research design represents and articulates the researcher's plan and the structure of investigation that will be followed when seeking answers to the research. Its role is to provide answers to the research questions and to control variance (Kerlinger, 1986, p.280).

Following the same thinking, Yin (1994, p.18) defines the research design as "the logic that links the data to be collected to the initial questions of a study". Simply acknowledged, the research design serves as a blueprint that outlines the overall research program and guides the investigator in collecting, analyzing, and interpreting observations (Kerlinger, 1986; Yin, 1994).

1 THE RESEARCH PATTERN

As mentioned earlier, a research pattern has to guide the researcher in his inquiry. It acts as a criterion for choosing solutions for the problems. Besides, defining the research pattern will allow the management and the organization of the research design, will enhance the validity of the resulting knowledge, and confer a cumulative characteristic (Thiétart et al., 2001).

Our research questions driving this study are of a contemporary nature; focus on issues related to "how" to enhance the CRM approach and activity in hotel companies, and require study in a systemic approach that considers the organization as a system which can be

divided into many sub-systems, the positivist methods are the most adequate for such type of research. The choice of this paradigm is justified by means of many considerations.

From an epistemology aspect, Reix (1995) highlighted the positivist approach in information systems research. The nature of the positivist paradigm is that there is a single reality that exists, objectively measurable, inherently understandable and outcome oriented. The positivist paradigm forms the basis of scientific tradition and, even though not limited to, underlies most quantitative and experimental research methods (Deshpandé, 1983; Gummersson, 2003; Hirschman, 1986). Orlikowski and Baroudi (1991) have established that 96,8% of empirical research are constructed based on positivist approach.

Various designs may be used to collect data for IS research, e.g., direct and participative observation, case study and interviews, field surveys, field experiments, secondary data, and laboratory experiments. Effective research must balance relevance with rigor (Benbasat and Zmud, 1999; Malhorta, 1998; DiMaggio, 1995; Weick, 1989, 1995). To obtain valid and meaningful results from research, it is critical to employ and appropriately implement the most suitable method(s) for the topic of the study. The research methodology cannot be chosen randomly. Instead, the research methodology is determined first, by the research questions that will drive the inquiry, the nature of the research questions, the stage of theory development in the research domain, and the resources such as time and budgets that are available to the researchers (Snow and Thomas, 1994; Field and Morse, 1991; Morse, 1994; Janesick, 1994).

Choosing a research method is generally based on the requirements stemming from the central research question and the objectives of the research (Stake et al., 1994). Despite the growing importance of information technology, information systems and customer relationship management in the hospitality industry, the literature covering these topics is relatively limited. When conducting research, there are two different approaches to consider: Qualitative and Quantitative (Cooper and Schinler, 2003). CRM research in the IT and marketing domains have utilized both qualitative research methods for theory building (e.g., Abbott et al., 2001; Goodhue et al., 2002; Kapoulas et al., 2004; Wells and Hess, 2002), and quantitative methods for theory testing (e.g., Croteau and Li, 2003; Karimi et al., 2001; Peters and Fletcher, 2004; Reinartz et al., 2004).

Based on the evolutionary characteristic of the CRM systems in hotels and on the objectives of this research that aim to confirm relationships between variables, our research follow the hypothetico-deductive method. The option to undertake a quantitative empirical approach constitutes a way to minimize the danger of the strength of the studied system. Furthermore, our choice is supported by the difficulty to access the field where information about CRM is levelheaded and strategic.

2 THE EXPLORATORY RESEARCH PHASE

The exploratory phase of the research was conducted according to the positivist approach which underlies a quantitative method. In other words, it is the quantitative, positivist research (QPR) which is a set of methods and techniques that allow information system researchers to answer questions about the interaction of humans and computers. The two cornerstone of this approach to research are the quantitative data and the positivist philosophy.

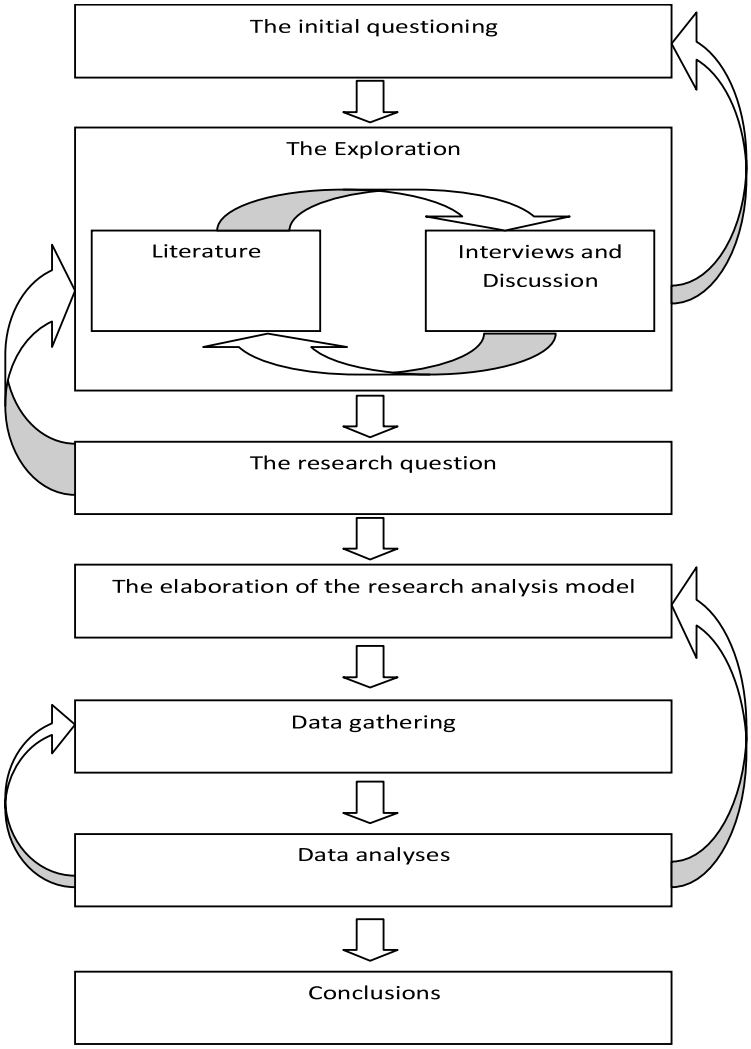
The quantitative methods and techniques introduce numbers that come to represent values and levels of theoretical constructs and concepts and the interaction of the numbers is viewed as strong scientific evidence of how a phenomenon works. As numbers are the core of the QPR approaches, statistical tools and packages are an essential element in the researcher's toolkit.

The underlying view of nature that leads a scholar to conclude that QPR can produce knowledge is that the world has an objective reality that can be captured and translated into testable hypotheses, usually in form of statistical or other numerical analysis (Popper, 1980). This approach can be divided into four steps:

- Testing internal consistency.
- Distinguishing between logical basics of the theory and its empirical, testable, predictions.
- Comparison with existing theory, showing that the new theory advances knowledge.
- Empirical testing aimed at falsifying the theory with data.

Quivy and Van Campenhoudt (1995) detailed further the approach. They conceptualized it into three different stages. The first stage consists of breaking the starting questioning. The research topic is studied via the literature review and the exploratory interviews and discussion leading to fix and encircle the research question. During the second phase, the researcher devotes himself to elaborate the theoretical representation of the observed phenomenon while specifying the concepts and the existing linkages. The final stage is the stage in which data analysis is made in order to pull the research conclusions. The figure below summarizes the different stages of our research. Those phases were adapted from Quivy and Van Campenhoudt (1995).

Figure 20 The Research Phases



We have presented above the research design and approach. Hereafter, we will present the research explanatory phases. As we have introduced before, the research follows a design approach and comprises building and evaluating a conceptual model.

The research methodology presented in this chapter aims to confirm the phases we took in order to validate our conceptual model. The next parts will present the Lebanese hospitality sector, the explanatory phase of the research, the research instrument, the data collection phase, and the data analysis.

3 THE HOTEL INDUSTRY AS A RESEARCH FIELD

The hospitality sector constitutes the framework of application for our research. Nevertheless, we will stick with the Lebanese hospitality sector.

In order to assess the business value of the customer relationship management in the Lebanese five-star hotels, we will present this sector and the role(s) that CRM can have in affecting the organizational performance of the hotel. The goal is to defend the choice of the testing-ground in assessing the CRM Business Value.

3.1 GENERAL HOTEL INDUSTRY KNOWLEDGE

The hotel industry is the greatest sector within the tourism sector (Verginis and Wood, 2001) which is one of the world's fastest growing industries. This industry yields to economical benefits not only for the organization, but also for the country (Cooper et al., 2005).

A hotel usually offers customers (guests) a full-range of accommodations and services. They may include reservations (rooms, suites…), food and beverage services (room service, restaurants, coffee shops, bars), banquet facilities, lounge and entertainment areas, personal services, meeting rooms and can specialize in catering to particular interests, such as conventions, gatherings and celebrations. As notices, the hotel service isn't about accommodation only; it provides facility for organizing parties and banquets, conferences, seminars and symposiums. To enhance our understanding of the hotel industry, we will exhibit some key indices.

Constantly customer oriented, a hotel can be categorized as a commercial hotel, which provides short-term accommodations for travelling guests; or as a residential hotel, which provides guest accommodations for longer periods. This property can be affiliated to a chain or independent ownership of hotels. But some independent hotels, may wish to create an alliance with other hotels, to form a group of independently managed hotels.

Similar to all industries, the hotel industry has some special performance indicators for describing and estimating the performance of a hotel. Those indicators, taking into account the nature of the industry, are associated with the occupancy of the hotel and the yielding revenue. We will explain two factors that measure a hotel's degree of financial success: occupancy percentage, and revenue per available room (RevPAR).

The occupancy percentage, which indicates the occupancy rate of the hotel properties, also measures the effectiveness of the marketing, the sales and the front office departments in their external and internal marketing efforts. The revenue per available room (RevPAR) is used to determine the amount of money each hotel room produces.

The history of the hotel industry is filled with remarkable concepts that shaped the products and services offered and affected the above mentioned two measures. The marketing emphasis and the technological advances were notable innovations (Bardi, 2007, 2010). The marketing technique surveyed guest markets and built systems around guests' needs. And the technological advances played a role in developing the products and services offered to guests and in forging relationships with guests by the mean of reservations systems, property management systems, marketing systems and many others. The guests are at the core of the business, and hotels are valuing the customer relationship permitting to illustrate the tendencies noted in the practices of customer relationship management (Sigala, 2005; Sigala and Connolly, 2004; Olsen and Connolly, 2000; Siguaw and Enz, 1999).

3.2 CRM IN THE HOTEL INDUSTRY

In the hotel industry, each customer had value and should get an effective and personalized management. Any guest presents an opportunity for returning, repurchasing and recommending. Consequently, the information provided by the customer has to be captured in order to become exploitable and used by the various hotel processes and departments.

Hospitality is an information-intensive business where hotels come in direct contact with the customer via numerous touch points. These touch points enable the hotel to gather guest information through their different information systems and through an ongoing basis. Those numerous touch points underlie the CRM approach. The CRM enables the hotel to capture, remember, and deliver all guest preferences to each service deliver point of contact. According to Haley and Watson (2002), CRM is the hot new technology tool for hotel companies towards performance. Managing and leveraging the guest's data enables the organization to improve the guest experience, and helps in optimizing occupancy, increase productivity, satisfaction and loyalty (Cuddihy, 2005) leading to increased hotel profitability (Siguaw and Enz, 1999). Mike Dalton, the senior vice president of lodging systems of the Marriott Hotel, supported that when he highlighted the benefits a CRM approach can have on the hotel.

The use of the CRM application to increase customer loyalty and customer retention by personalizing a customer's stay has yielded in proof. The Rittenhouse's vice president and general manager, David Benton, said that the key to his hotel success is the personalized service that honors each guest. This property has earned the "AAA Five Diamond Award" for 14 consecutive years and has merited a position on the Conde' Nast Gold List as one of the best places to stay in the world (Hotel News Resources, 2005).

Despite all the benefits listed above, many service organizations have yet to gather the paybacks of CRM. Although an enormous debate regarding the identification and the importance of CRM success determinant factors, there is still no agreed framework (Sigala, 2005). Because of the scarcity of research in the hotel industry regarding the information systems in general and the CRM in specific, the hotel industry appears to represent a favorable field to the application of the CRM Business Value research model.

3.3 HOTEL INDUSTRY IN LEBANON

Lebanon is situated along the east coast of the Mediterranean Sea. Its location at the crossroads of the Mediterranean basin and the Arabian hinterland had dictated its rich history, and shaped a cultural identity of religious and ethnic diversity. Tourism has traditionally played a key role in the Lebanese economy, and contributes 23% to the country's GDP. In an interview, Mr. Weinlaender (Intercontinental Phoenicia Beirut, General Manager) affirmed

that Lebanon posted the highest growth rate in tourism arrivals in the world during 2008. He also pointed out that 2009 was a continuation from 2008 in terms of tourism, mentioning that there are no issues of seasonality (Macropolis, 2010).

Deloitte (2010) has confirmed that hotels in the Middle East achieved the highest occupancy and RevPAR in 2009 with Beirut (Lebanon's capital) reporting the strongest increases in the region and the world for the second consecutive year. In 2009, Lebanon posted the highest rate of growth in tourist arrivals in the world—a stunning 39%. Of course, this was off of a low year, but the growth continues; for the first quarter of 2010, growth over 2009 is at 37% (source the Lebanese Ministry of Tourism). Dr. Fadi Abboud (Minister of Toursim) stated that only 3% of the tourists come from packages and organized tours, while the rest of the people book their trips independently. This shortcoming of the packages and the tour operators can emphasize more on the importance of the CRM in creating and managing profitable relationships with customers.

LEBANESE FIVE-STAR HOTELS

Based on the ministry of tourism and the syndicate of hotel owners in Lebanon, 24 five-star hotels are operative. 12 hotels are part of a hotel chain, and the other 12 are independently managed where 2 of them belong to a hotel alliance. The table below lists all[5] the five-star hotels in Lebanon.

Table 17 List of Lebanese Five-Star Hotels

Region	Hotel		Region	Hotel
Beirut	Galleria		Beirut	Coral Beach
Beirut	Phoenicia		Beirut	Gefinor Rotana
Beirut	Martinez Radisson BLU		Beirut	Raouche Arjaan by Rotana
Beirut	Summerland		Beirut	Le Gray
Beirut	Le Commodore		Beirut	Four Seasons Beirut
Beirut	Movenpick		Dbayeh	Le Royal
Beirut	Royal Plaza		Adma	Sun Hills suites
Beirut	Crowne Plaza		Kfardebian	Mzaar Intercontinental
Beirut	Metropolitan		Broumana	Printania Palace

[5] This list is edited based on information given by the syndicate of hotel owners in Lebanon

Beirut	Habtoor Grand Hotel		Broumana	Grand Hills Village
Beirut	Safir Heliopolitan		Chtaura	Park Hotel
Beirut	Le Vendôme		Zahlé	Kadri

3 hotels were not included in the final sample. A hotel was in a full renovation phase, and the remaining 2 hotels did not accept to participate in the research. The 3 hotels were 1 from the alliance part, and 2 independently managed.

The data collection has yielded in 43 CRM respondents; 39 questionnaires were identified to fit to a data analysis, where 4 questionnaires were excluded. For more details, refer to section 4.1.

4 THE EXPLANATORY PHASE OF RESEARCH

This research was conducted in a four years period which can be divided into five major tasks: The literature review, the elaboration of the main research question and the conceptualization of the conceptual model, the conception of the questionnaire, the administration of the questionnaire, and the data analysis and interpretation. Throughout those tasks, a continual task of writing the thesis was performed.

Our original sample is constituted by the 5 stars hotels in Lebanon. Any of those hotels practice a CRM activity at least, and is concerned by our main research question.

The link between our research and our sample is that all those hotels practice at least a CRM activity, and was considered accessible to the research activity. Moreover, those hotels are likely to have many departments to manage the CRM activity (sales, marketing, and services).

From the syndicate of the hotel owners in Lebanon, and ministry of tourism, and the websites we have constructed our sample of 24 “5-star hotel”. Of those 24 hotels, 23 hotels were contacted since the last hotel was conducting renovation works, and the management of the hotel had suspended the service and relocated employees to other hotels of the same alliance.

Based on this list, we created our database concerning the sample. This database contained the hotel name, the owner name, the telephone number, the website, and the email address of, in general, the reservation department. Moreover, the contacts I maintained due to my experience in the hotel sector helped me in enhancing the database. Additional to the data listed above, persons responsible for the CRM activity (sales, marketing, and service-front office) in hotels were added (email and mobile number).

4.1 DESCRIPTIVE ANALYSIS OF THE FINAL SAMPLE

The aim of the research is to assess the CRM approach of the hotels, and to conceptualize the success factors for such an approach. In general, the CRM approach

Hereafter, we will describe the general information concerning our sample.

PARTICIPATION RATE AND RESPONDENT DESCRIPTION

All 23 hotels were contacted. Only 2 hotels refused to participate in the research stating that the research was demanding the disclosure of confidential information. The remaining 21 hotels were addressed an email enclosing the survey proposal either directly to the CRM person (Sales, Marketing, Front Office) or to the hotel directions (General Manager or Human Resource office) asking them to forward the email to the concerning three persons. Thus, the number of respondents to our survey should be 63 respondents, because we questioned 3 persons per hotel. The final sample, which included 43 respondents, was cleaned for the purpose of the analysis, and it presents 39 analyzable cases. As a result, we can conclude that the participation rate is 61.9%, which is an acceptable rate for the analyses. The rest of the sample who did not answer the survey can be linked, as stated by some, to a lack of time and interest.

This high response rate can be attributed to the maintained relationships with the hospitality sector and the persons working in that sector after our first experience in a 5-star hotel in 2003. Those relationships and the network behind permitted us to have a high response rate to our survey.

The 39 respondents are distributed into the three CRM categories (Table 18).

Table 18 Respondents by Job Category

	Frequency	Percent	Cumulative Percent
Marketing	11	28,2	28,2
Sales	14	35,9	64,1
Service	14	35,9	100,0
Total	**39**	**100,0**	

28,2% of the respondents are in the management of the marketing activity of the hotel, 35,9% are in the sales activity, while the rest 35,9% are concerned with the service (front office) activity in the hotel. The frequencies in the sample prove the significance of our sample in representing the persons responsible for the CRM approach in the hotel.

41% of the total respondents have less than 2 years of experience in the occupied position at the time of the survey, while the majority, 59% have more than 2 years of experience in the position. 36% of the respondents have more than 10 years in the hospitality sector.

HOTEL DESCRIPTION

As mentioned before, all queried hotels are 5 stars hotels. Yet, not all hotels are managed in the same way. Some of them are independently managed, while others are dependent from a hotel chain management or make part of a hotel alliance. From the respondents, 10 respondents work in an independently managed hotel, 1 in a hotel that is in a part of alliance, while the majority (28 respondents) works in a hotel being part of a hotel chain.

CUSTOMER PERCEIVED SATISFACTION

The majority of the respondents (56,4%) claim that they perceive that their customers are more than 80% satisfied with the establishment and 33,3% of the respondents said that their customer satisfaction is between 60% and 80%. To sum up, 90% of the respondents perceive that their customers are satisfied with the hotel service.

ICT AVAILABILITY

Regarding the respondents' ICT availability in the hotel (Table 19), apart from the wide availability of internet and hotel website (100% of hotels), data hygiene systems can't be found in accordance with customer database system.

Table 19 ICT Availability

	Yes	No	Planning to
General ICT			
Property Management System	92,3%	7,7%	0%
Customer Database	87,2%	5,1%	7,7%
Data Hygiene	56,4%	41,0%	2,6%
ICT in Service			
Room Management System	76,9%	17,9%	5,2%
Activity Scheduling System	59,0%	33,3%	7,7%
Call center	64,1%	33,3%	2,6%
ICT in Room			
Smart Key Card System	84,6%	10,3%	5,2%
Food and Beverage System	92,3%	7,7%	0%
TV Based Service	69,2%	23,1%	7,7%
Automated Mini-bars	35,9%	56,4%	7,7%
Telephone System	97,4%	2,6%	0%
ICT in Sales and Marketing			
Central Reservation System	84,6%	12,8%	2,6%
Sales Force Automation	53,8%	33,3%	12,9%
Yield and Revenue Management System	69,2%	17,9%	12,9%
Conference and Banqueting System	74,4%	15,4%	10,2%
Marketing and Sales System	87,2%	12,8%	0%

As the above table reveals, the high percentage of the customer database indicate that hotels are not satisfied enough with their systems' databases and prefer to build a standalone customer database system. However, this standalone database is not equipped with a data hygiene system which can assure a clear and useful data leading to an impure customer database available to CRM employees. Hotels tend to use heavily property management system, food and beverage system, smart key card system, central reservation system and marketing and sales system for their CRM activity in collecting, analyzing, sharing, and using customer information. Nevertheless, several opportunities to better managing customer relationships are being lost in some hotels (e.g. gather guests' preferences of TV based service, Automated Mini-bar etc.).

ICT USE

In this paragraph, we will summarize the hotel ICT use perceived by the respondents. It is the illustration of the structured process of the CRM. This part will concern five essential capabilities IT should bring to any CRM approach. The sales support, marketing support, service support, analysis support, and the data integration and access support (Day, 2003; Greenberg, 2004).

The percentage column represents the nearly aggregation percentage of the respondents who agree and highly agree on each statement.

ICT Sales Support: Concerning the use of ICT for sales support, the main use is to provide customized offers to sales people and to provide assign leads and prospects to appropriate sales personnel. Nearly 75% of the respondents agree that they use hotel's ICT to the above mentioned activities. Table 20 describes the ICT function concerning the sales support process.

Table 20 ICT use for Sales Support

Sales Functions	
Provides customized offers to sales people	75%
Assign leads and prospects to appropriate sales personnel	75%
Provides sales force with leads for cross/up sell opportunities	69%

Provides sales force with guest information	67%
Enables inventory management	56%
Controls sales through multiple sales channels	44%
Provides sales force with competitor information	41%

ICT Marketing Support: The main use of the ICT in the marketing support is linked the generation of customized offers. Table 21 offers a clear view of the use of ICT to marketing support.

Table 21 ICT use for Marketing Support

Marketing Functions	
Generates customized offers	70%
Support marketing planning and budgeting	67%
Customizes our communication to guests	54%
Enables management of marketing promotion	54%
Automates routine activities such as providing promotional literature	54%
Analyzes responses to marketing campaigns	41%

ICT Service Support: The use of ICT to support the service in hotels is mainly concentrated on the fast response and to quickly serve the guests.

Table 22 ICT use for Service Support

Service Functions	
Provides guests support personnel to access to a knowledge base of solutions to commonly occurring problems	67%
Allows guest support personnel to access data on guest interactions with all functional areas	62%
Is able to customize service scripts to the particular guest's needs	56%
Schedules and tracks service delivery	56%

ICT Analysis Support: The main use of ICT concerning the analysis support is the measurement of rooms' occupancy rates.

Table 23 ICT use for Analysis Support

Analysis Functions	
Calculates rooms' occupancy rates	90%
Enables forecast of guests preferences	62%
Measures guest loyalty	62%
Calculates banqueting properties' occupancy rates	56%
Calculates guests' retention rates	51%
Calculates guest life time value	49%
Enables assessment of channel performance	44%

While the analysis support should mean the processes of analyzing the guests' information, we find that the respondents' perceived use of the ICT in the analysis support is the measurement and the assessment of guests. This indicates that the analysis is an indirect process integrated in others process support (sales, marketing, and service).

ICT Data Integration and Access Support: Table 24 shows that gathering, storing and disseminating guest information is widely apparent. ICT is available for the transferability and the accessibility of guest information among all functional areas.

Table 24 ICT use for Data Integration and Access Support

Data Integration and Access Support Functions	
Integrates guest information from different contact points	80%
Allows relevant employees access to unified guest data	77%
Combines guest transaction data with external source of data	41%

The previous section was a description of the research respondents. Even though its aim was only to describe, this section brought a justification to the research final sample.

In the next section, we will describe our data gathering method as well as the chosen research instrument.

5 DATA GATHERING AND THE RESEARCH INSTRUMENT

Advance preparation for the data collection phase is essential to the overall integrity of the study (Yin, 1994). Within each research approach, one or many techniques are available for the utilization. In general, the researcher decides for one (or multiple) data collection techniques while considering its overall appropriateness to the research, along with other practical factors, such as: expected quality of the collected data, estimated costs, predicted non-response rates, etc… (Lyberg and Kasprzyk, 1991). As a result, the choice of the technique has direct consequences on the quality of collected data. The most popular techniques include surveys, interviews, transcript analysis, objective measure, etc.

A survey can also be an experiment, a mailed survey or questionnaire, a semi-structured interview, or a Web survey or questionnaire.

In our data gathering process, we have opted for a quantitative approach conducted by a questionnaire. Once the technique is chosen, the researcher has to define the method of managing the questionnaire. The survey can be completed through a face-to-face intervention, an auto-administrated intervention, a telephone intervention, a mail survey, or an Internet based questionnaire. We have used almost all kinds of interventions.

Before explaining the data collection methodology, it is imperative to mention our exploratory phase which resulted in supporting the considered variables and framework.

In order to investigate our research inquiry, we have processed, at first, with an exploratory phase. During this phase, we have conducted interviews with many CRM Managers in different Lebanese 5 Star Hotels. The interviewed persons were responsible of one of the main departments of a CRM Approach. They were either the Front Office manager, the sales manager, or the marketing manager. The interviews consisted of asking some general questions concerning the CRM Approach of the hotel and the critical success factors of this approach as well as its probable impact on the hotel. The questions were based on the literature of the CRM, its Business Value and the critical success factors.

The interviews did not yield to any emerging variables; rather they have supported and maintained the factors that were identified in the literature. However, the interviewees have highlighted the importance of some factors. They have specifically highlighted the inter-functional coordination and the information systems department expertise (consultancy and support). They have also brought support for the three activities of the CRM (Collaborative, Analytical, and Operational).

After explaining the explorative part of our research, we will expose the data collection methodology.

5.1 DATA COLLECTION METHODOLOGY

As the objective of the research is to evaluate the CRM approach of hotels, and to define the critical success factors for such an approach, we drew our questionnaire in accordance to gather data concerning those elements. We have elaborated our questionnaire on the Survey Monkey webpage via the survey template. It is not complicated and permits us, at the end, to have an accessible web address link that we can send to our respondents. The Survey Monkey webpage hosts the questionnaire and saves the responses. Then, we can download the responses to our computer choosing different types.

In order to maximize the response rate, we have contacted the CRM heads (Sales, Marketing, and Front Office) in each hotel in order to see if they are interested in participating in the study. Some of them were directly interested and gave us the email address while others have asked to contact the human resource department. An assistant in Lebanon helped me in the initial contact and have prepared a list of interested persons (beginning of March 2010). All CRM heads have received an introductory cover letter, a study overview and a sample of the survey (by fax or by email).

At the end of March 2010, we re-contacted the persons (by telephone) and sent the link of the survey. Two weeks later, we have sent an email for thanking the responders and asking the others to answer. Meanwhile, we were working on maximizing our database of contact and sending the survey link to every new contact. Two weeks after the initial contact, we proceeded to sending an email reminding them about the survey and its importance for the accomplishment of our PhD research.

By the end of April 2010, we had 23 responders, thus we have decided to re-contact the persons by telephone asking them to answer our survey. Some of them weren't interested by the research or didn't have time.

Mid May 2010 (35 respondents), we have re-contacted our entire list to thank them for their participation. Some of them displayed their interest and that they forgot about the survey.

Mid June 2010, we have sent a final email (for the interested people mentioned ahead) informing them that the survey link will not be accessible starting July.

End of June 2010, we have closed the access to our survey, and have had 43 respondents.

THE ADVANTAGES OF THE INTERNET SURVEY

Many researchers have highlighted the numerous advantages of the survey via Internet (Nowack, 1997; Stanton, 1998; Weible and Wallace, 1998). They have mentioned the reduction of cost and the rapidity of the feed-back.

THE INCONVENIENT OF THE INTERNET SURVEY

One the major inconvenient of the internet survey is the fact that respondents do not feel comfortable in transmitting information via Internet (Hudson et al., 2004). The respondents are unaware of the researcher. To remedy this type of inconvenience, we have stated our telephone number and a letter from the CERAG mentioning the objective of the research and highlighting the fact that the survey is anonym and all collected data will stay confidential.

Other inconvenient of the Internet survey method is the weak response rate (Couper, 2000; Dillman, 2000). A low weak response can be explained by the fact that the email reaches the junk email folder of the receiver. To make sure we reduce this type of incidents, before sending the email, we proceeded to calling the person and asking the email address and requesting a delivery receipt.

After explaining the method we have used to gather our data, we will exhibit the questionnaire.

5.2 ELABORATING THE QUESTIONNAIRE

The elaboration of the research instrument (questionnaire) leads to the explanation of the measurement scales intended to assess the questioned concepts. The final questionnaire as presented in the Appendix A is divided into 9 sections excluding the introduction and the general information sections, which treat the respondents and the hotel they work for. The questionnaire is composed by 138 questions.

18 questions address the information and communication technologies availability in the hotel, where the answer can be Yes, No, or Planning to.

The rest of the questions (120 questions) were closed questions with a scale consisting of five-point Likert-type indicators. 109 questions had a N/A option for answering.

The introduction of the questionnaire consisted of the purpose of the research and a brief definition for the CRM approach.

The second part was dedicated to capture general information about the respondents, and the hotel they work for.

The subsequent parts were expressed as below:

- Questions about the ICT availability in the hotel
- Questions about the perception of the CRM process
- Questions about the CRM support, from an information systems' backing
- Questions about the top management support perception
- Questions about the organizational culture, in which we can find the customer orientation, the competitor orientation, and the inter-functional coordination
- Questions about the organizational system
- Questions about the end-user system satisfaction

- Questions about the perceived performance through the use of the CRM
- At last, questions about the judgment concerning the ICT support in each function (marketing, sales, support, analysis, and integration)

PRETESTING THE QUESTIONNAIRE

As the research elaborates the first version of the questionnaire based on the literature, the instruction is to pretest the questionnaire in order to avoid the unfairness linked to the formulation of the questions, others associated with the parts' order, and other biases related to the understanding of the questions (Evrard et al., 2003).

We have proceeded to many pretests on our questionnaire in order to reach our final version. Table 25 summarizes the many versions of the questionnaire.

Table 25 Questionnaire Elaboration Stages

Area of Expertise	Function	Contribution	Impact
			Version 0
Information Systems (University)	Research advisor	General instructions on the elaboration of the questionnaire Measurement scales	Version 1
Statistics (University)	Statistics Engineer	General instructions on the elaboration of the questionnaire Statistical analyses	Version 2
Hotels Information System (Professional)	Expert and consultant in Hotels Information Systems Head of revenue management development	Questions sequencing, and appropriateness of hostelry terms, and questionnaire length	Version 3
Information Systems (University)	Researcher at Grenoble School of Management and Cornell University	Questions sequencing, measurement scale, and questionnaire length	Version 4

Hotel (Professional)	Front Office director (5* hotel in France)	Appropriateness of hostelry terms	Version 4
Hotel (Professional)	Marketing director (5* hotel in France)	Appropriateness of hostelry terms	Version 5
Hotel (Professional)	Sales and Marketing assistant (5* hotel in Lebanon)	Appropriateness of hostelry terms	Version 6
Hotel (Professional)	Sales director (5* hotel in Lebanon)	Appropriateness of hostelry terms	Version 7
Hotel (Professional)	Front Office director (5* hotel in Lebanon)	Appropriateness of hostelry terms	Version 7

The corrections, once made, resulted in modifications concerning the reformulation of some questions, their order, the adjustment of some terms concerning the hostelry, and the addition of some questions to meet the hostelry field. Once all the modifications were done, we proceeded to the elaboration of the questionnaire on the survey monkey website. At the end of this process, the survey was available via this link:

http://www.surveymonkey.com/s/JVYPQHP

Once the survey was ready, we have sent it to some friends in the hostelry industry in order to evaluate it.

5.3 THE MEASUREMENT SCALES IN THE QUESTIONNAIRE

As mentioned before, in order to construct a questionnaire, the researcher should specify the measurement scales of each construct before starting to write it. Those measurement scales will define what we are looking for and will help in testing the research hypotheses.

In elaborating the questionnaire, all constructs were measured according to a multi-item scale that was selected based on earlier research and was adapted for the purpose of this research. Whenever possible, pre-tested measurement scales from prior empirical research literature were adapted and used in the questionnaire. The items that were largely found in the CRM literature and were equally found in the IS literature concerning the critical success

factors and related to the business value of an information system make the purpose of the questionnaire. However, given the relative innovation of CRM and the small number of research in this area, some variables in the questionnaire were adapted from previous academic and empirical measurement approaches that have been identified as appropriately pertinent to the CRM approach.

5.3.1 THE ORGANIZATIONAL SYSTEM CONSTRUCT

This construct is inspired and adapted from the customer-centric management system construct of Jayachandran et al. (2005). Any information processes are likely to being influenced by an organization's system (Menon and Varadarajan, 1992); and customer relationship management is not the exception. Day (2000) highlights the influence that can have such a system on the implementation of CRM. This construct is measured by mean of the 6 items scale adapted from Jayachandran et al. (2005).

- Os1: The hotel focuses on customer needs while designing business processes
- Os2: In the hotel, employees receive incentives (encouragements) based on customer satisfaction measures
- Os3: A key criterion used to evaluate the customer contact employees is the quality of their customer relationships
- Os4: In the hotel, business processes are designed to enhance the quality of customer interactions
- Os5: The hotel is organized around customer-based groups rather than product or function-based groups
- Os6: Various functional areas coordinate their activities to enhance the quality of customer experience

5.3.2 THE TOP MANAGEMENT SUPPORT CONSTRUCT

The top management support construct was adapted from Rai and Bajwa's (1997) model for the adoption of Executive Information Systems (EIS). Originally conceived for the

EIS, the 6 items are adaptable to different information systems making them applicable to the CRM information systems.

- Tms1: Top management's contact with the executive sponsor(s) on CRM related issues is frequent
- Tms2: CRM is regarded as a high priority by top management
- Tms3: The executive sponsors(s) are regularly involved through the CRM project
- Tms4: Top management perceives CRM to be part of the organization's vision
- Tms5: Top management provides sufficient resources for CRM
- Tms6: Top management usually provides constructive feedback on the appropriateness of CRM applications

5.3.3 THE CUSTOMER ORIENTATION CONSTRUCT

In this study, the definition and scale for market orientation developed by Narver and Slater (1990) was adopted. Although the authors have created a one-dimension construct, in this research, and consisting with our CRM approach, we will not take into consideration the two decision criteria of the main construct, and we will stick with only the three behavioral components. As a result, we used the three components as three distinct variables.

A critical aspect for any customer relationship management approach is the customer orientation. This construct is based on Narver and Slater's (1990) customer orientation.

- Oc1: Showing commitment to customers
- Oc2: Creating services that offer value for customers
- Oc3: Understanding customer needs
- Oc4: Having customer satisfaction a major objective
- Oc5: Measuring customer satisfaction
- Oc6: Providing follow-up services

5.3.4 THE COMPETITOR ORIENTATION CONSTRUCT

The competitor orientation construct measure was adapted from Narver and Slater (1990). The 4 items are:

- Oc7: People in charge of various services discuss competitor information
- Oc8: People in charge of various service units respond rapidly to competitors' actions
- Oc9: Top managers' discuss competitors' strategies
- Oc10: Top managers' target opportunities for competitive advantage

5.3.5 THE INTER-FUNCTIONAL COORDINATION CONSTRUCT

As mentioned in the two above sections concerning the customer and competitor orientation, the inter-functional coordination construct was adapted from Narver and Slater (1990).

- Oc11: Various service units work close together to meet customers' needs
- Oc12: Various service units share business information with each other
- Oc13: Business strategies are integrated between service units
- Oc14: All service units work together in offering value to customer
- Oc15: Different service units share resources with each other

5.3.6 THE END-USER SYSTEM SATISFACTION CONSTRUCT

Consisting with all success stories of information systems, the CRM success factors include the end-user system satisfaction. The measure of this construct is based on the measurement of end-user computing satisfaction of Doll and Torkzadeh (1988), a measurement that was used numerous times in the information systems research proving its validity and consistency. The construct is measured via five dimensions. The 12 items measuring the whole construct are:

- Eus1: The system is able to provide the precise information you need
- Eus2: The information content provided meets your needs
- Eus3: The system provides reports that seem to be just about exactly what you need
- Eus4: The system provides reports that seem to be just about exactly what you need
- Eus5: The system is accurate
- Eus6: You are satisfied with the accuracy of the system
- Eus7: The system's output is presented in a useful format
- Eus8: The system's output information is clear
- Eus9: The system is a user friendly
- Eus10: The system is easy to use
- Eus11: The system provides information needed on time
- Eus12: The system provides up-to-date information

5.3.7 THE INFORMATION SYSTEMS DEPARTMENT EFFECTIVENESS CONSTRUCT

The IS literature is associating the overall success of information systems with the quality of services and relationships received from the systems support (e.g., Ifinedo and Nahar, 2006; Kouki et al., 2009; Thong et al., 1994). The systems support is viewed as the consultant and vendor effectiveness and support.

In measuring the two constructs, we will adopt Thong et al. (1994) scales in measuring the engagement of systems support in information systems implementation.

The Information Systems Department (ISD) consultant effectiveness role is measured by means of 4 items:

- Cons1: Effectiveness in performing information requirements analysis
- Cons2: Effectiveness in recommending suitable computer solution
- Cons3: Effectiveness in managing implementation
- Cons4: Relationship with other parties in the project (CEO, users, vendor)

5.3.8 THE INFORMATION SYSTEMS DEPARTMENT SUPPORT CONSTRUCT

Similar to the above paragraph, the Information Systems Department (ISD) vendor support role construct is measured based on Thong et al.'s (1994) Vendor Support.

- Vend1: Adequacy of technical support during CRM Implementation
- Vend2: Adequacy of technical support after CRM implementation
- Vend3: Quality of technical support
- Vend4: Adequacy of training provided
- Vend5: Quality of training provided
- Vend6: Relationship with other parties in the project (CEO, users, consultant)

5.3.9 THE CRM COLLABORATIVE ACTIVITY CONSTRUCT

The CRM collaborative activity construct, operationalized in 9 items, is based on Jayachandran et al.' (2005) reciprocity and capture constructs. These measurement items have been identified as metrics that can measure the collaborative activity of a CRM approach which emphasizes the reciprocity and the capture processes. As a result, the CRM collaborative activity construct is measured via a scale including 9 items:

- Crm1: The hotel enables customers to have interactive communication with
- Crm2: The hotel provides customers with multiple ways to contact with
- Crm3: The hotel focuses on communicating periodically with the customers
- Crm4: The hotel maintains a regular contact with the customers

- Crm5: The hotel collects customer information on an ongoing basis
- Crm6: The hotel captures information from internal sources within the organization
- Crm7: The hotel collects customer information using external sources (market research agencies, network…)
- Crm8: The information collected from customers is updated in a timely fashion
- Crm9: The hotel uses customer interactions to collect information

5.3.10 THE CRM ANALYTICAL ACTIVITY CONSTRUCT

The CRM analytical activity construct is measured based on the scales of measure consisting the information integration and the information access in the relational information process in Jayachandran et al. (2005). In uniformity with the CRM literature and the main functions in the analytical activity, the 8 items measuring this activity are:

- Crm10: The hotel integrates customer information from the various functions that interact with customers (front office, marketing, sales…)
- Crm11: The hotel integrates internal customer information with customer information from external sources
- Crm12: The hotel integrates customer information from different communication and interaction channels (in room ICT, fax, email, telephone…)
- Crm13: The hotel merges information collected from various sources for each customer
- Crm14: In the organization, relevant employees find it easy to access required customer information
- Crm15: In the organization, relevant employees can access required customer information even when other departments/functional areas have collected it

- Crm16: In the organization, relevant employees always have access to up-to-date customer information
- Crm17: In the organization, relevant employees are provided the information required to manage customer relationships

5.3.11 THE CRM OPERATIONAL ACTIVITY CONSTRUCT

Consisting with the CRM literature, the CRM operational activity construct was measured based on the scale used to measure information use by Jayachandran et al. (2005). The following 9 items measuring this construct were inspired from Jayachandran et al. (2005).

- Crm18: The hotel uses customer information to develop customer profiles
- Crm19: The hotel uses customer information to segment markets
- Crm20: The hotel uses customer information to assess customer retention behavior
- Crm21: The hotel uses customer information to identify appropriate channels to reach customers
- Crm22: The hotel uses customer information to customize the offers and services
- Crm23: The hotel uses customer information to identify the best customers
- Crm24: The hotel uses customer information to assess the lifetime value of the customers
- Crm25: The hotel uses customer information to identify the potential markets
- Crm26: The hotel uses customer information to identify the potential customer's types

5.3.12 THE PERCEIVED PERFORMANCE

The perceived performance construct, operationalized in eleven items, is based on Croteau and Li's (2003) CRM impact construct. It was adapted to fit in the hostelry perceived performance.

- Perf1: The organization's satisfaction with customer retention rate for old customer is
- Perf2: The organization's satisfaction with customer retention rate for new customer is
- Perf3: The organization's satisfaction with customer loyalty is
- Perf4: The organization's satisfaction with market share gains in targeted customer segments is
- Perf5: The organization's satisfaction with properties occupancy rate is
- Perf6: The organization's perceived customer satisfaction in terms of innovative products and services is
- Perf7: The organization's perceived customer satisfaction in terms of customized products and services is
- Perf8: The organization's perceived customer satisfaction in terms of convenience to the customer is
- Perf9: The organization's perceived customer satisfaction in terms of the employees' team spirit is
- Perf10: The organization's anticipation of emerging customers' need is
- Perf11: The organization's perceived customer satisfaction in terms of on time delivery of products and services is

Table 26 recapitulates all the variables included in our CRM Business Value research model. For each variable, we display the items used to measure it and the basic measurement references.

Table 26 Operationalization of the Variables

Variable	Items	Measurement reference
Top Management Support	tms1, tms2, tms3, tms4, tms5, tms6	Rai and Bajwa, 1997
Customer Orientation	oc1, oc2, oc3, oc4, oc5, oc6	Narver and Slater, 1990
Competitor Orientation	oc7, oc8, oc9, oc10	Narver and Slater, 1990
Inter-Functional Coordination	oc11, oc12, oc13, oc14, oc15	Narver and Slater, 1990
Organizational System	os1, os2, os3, os4, os5, os6	Jayachandran et al., 2005
End-User System Satisfaction	eus1, eus2, eus3, eus4, eus5, eus6, eus7, eus8, eus9, eus10, eus11, eus12	Doll and Torkzadeh, 1988
Information Systems Department Effectiveness	cons1, cons2, cons3, cons4	Thong et al., 1994
Information Systems Department Support	vend1, vend2, vend3, vend4, vend5, vend6	Thong et al., 1994
CRM Collaborative Activity	crm1, crm2, crm3, crm4, crm5, crm6, crm7, crm8, crm9	Jayachandran et al., 2005
CRM Analytical Activity	crm10, crm11, crm12, crm13, crm14, crm15, crm16, crm17	Jayachandran et al., 2005
CRM Operational Activity	crm18, crm19, crm20, crm21, crm22, crm23, crm24, crm25, crm26	Jayachandran et al., 2005
Perceived Performance	perf1, perf2, perf3, perf4, perf5, perf6, perf7, perf8, perf9, perf10, perf11	Croteau and Li, 2003

After having presented the operationalization of the variables included in the questionnaire and the data collection technique, it is suitable to exhibit the appropriate data analysis techniques for our research approach.

6 THE DATA ANALYSIS AND HYPOTHESIS-TESTING PROCEDURES

In this section, we will describe the methods used in order to apply our conceptual research model to the hotels sector in Lebanon. We will cover the data preparation phase, the data analysis concerning the research instrument validity, and the data analyses relative to the hypotheses-testing.

6.1 DATA VERIFICATION

Before starting any analysis on the data collected for the purpose of testing our conceptual model, a data hygiene activity is required. This stage acts as an error spotting where the quality of the collected data is the final result. This is a crucial phase in the data analysis since the arisen data will surely affect any future analysis and all resulting interpretations (Evrard, 1993).

The data verification consists of three criterions: the legibility and readability, the completeness, and the coherence.

- The legibility and readability of the questionnaire means that all questions were understood and that all answering instructions were respected. In the case of our research, we have tried to minimize the kind of such incidents, because the majority of the questions were closed questions. The remaining questions were general information question.
- Before analyzing the data, it is important to make sure of the completeness of the questionnaire, and that we don't include uncompleted survey in our final analysis. In the case of our research, we had 4 incomplete surveys.
- The last verification test is to check for any incoherencies.

After the data verification the final sample totaled 39 analyzable surveys and 4 deleted surveys due to verification criterions. The percentage of the received and analyzable surveys is 62%. Once the questionnaire verification was done, the data was downloaded under an Excel format.

In a quantitative positivist research, the most crucial issue that the researcher has to focus on is that he should ensure that the measurement can be trusted. Thus, it is important to accordingly choose the analysis methodologies and concepts in order to verify the quality of the data and the exactness of the resulting outcomes and their reliability.

6.2 INSTRUMENT VALIDITY

The instrument validity is the critical first step in quantitative positivist research. If the validation of the instrument does not exist, at a minimal level, then all conclusions are thrown into doubt (Straub et al., 2004). The validation principles fall into four categories (Straub, 1989), where the fourth category (Manipulation validity) is not assessed frequently enough in IS experimental settings. The remaining three types of scientific validity are: content validity; construct validity; and reliability.

This phase consists of the validation of the scale of measure used for the constructs in the questionnaire. This is to verify that the measurement instrument observe the true characteristics the research is attempting to measure and nothing else (Churchill, 1979). According to Churchill (1979), the content validity has to be done before the final data collection process begins. The other two tests (construct validity and reliability) form the second phase of the instrument validity and are performed once the final data collection is completed.

6.2.1 CONTENT VALIDITY

As mentioned by Churchill (1979), the content validity happens during the exploration stage in the research. This validity concerns the measurement scales and items that will be used as a root for the data collection and as a foundation for the validation phase of the research model.

The measurement scales should specify the domain of the construct and items should capture the specified domain (Churchill, 1979). The main concern of the researcher is to draw representative measures for the instrument, and thus by choosing the scales, an elemental task is to delineate what is included in the definition of the construct and what is excluded.

The content validity stage will conclude whether the instrumentation (questionnaire items) pull in a representative manner from all of the ways that could be used to measure the content of a given construct. In fact, the instrumentation should effectively capture the different aspects of the construct (Evrard, 1993) and in the contrary case the instrument would generate a mean responsible for incertitude towards the final results interpretations (Straub, 1989).

The content validity is established through literature reviews and expert judges or panels (Straub, 1989). The literature reviews should indicate how the variable has been defined previously and how many dimensions or components it has and how it has been measured. Drawing on the appropriate literature, the researcher will select the instrumentation and will submit it to a judgment sample of persons (expert judges). Those persons can offer some ideas and insights into the studied phenomenon. They should have a special expertise enabling them to judge the capability of the instrumentation to capturing the studied phenomenon (Churchill, 1979; Evrard, 1993). This approach includes discussions with appropriate people where at its end, the instrumentation could be modified and enhanced to better capture and represent the research variables.

We have proceeded to the content validity through two phases. The first phase which treats the literature reviews consists of three stages. We have reviewed the information systems literature concerning the business value and the evaluation and the information systems as well the marketing literature concerning the CRM. This first stage has permitted us to clearly define the domain of each construct and research variable. In the second stage, we have selected the appropriate measurement scales which were widely confirmed and validated. The final stage enabled us to elaborate some specific items that will help in measuring constructs that are proper to our research. The second phase in our content validity was dedicated to the expert judgment. For more details concerning this phase, please refer to Table 25.

At the end of this stage, we revised the scales and developed the final questionnaire. The scales consisted of five-point Likert-type indicators (“Highly Disagree” towards “Highly Agree” or “Very Low” towards “Very High”). This content validity will permit to carry on towards the rest of the instrument validity tests.

6.2.2 CONSTRUCT VALIDITY

The construct validity, or the characteristic of the scale, tests whether items offer a good representation of the studied phenomenon. It is not focused on the substance of the items, other than, perhaps, its meaningfulness within its usual theoretical setting (Bagozzi, 1980). The main subject is to check that the instrument items of a given construct, considered together, do operationalise the construct (Cronbach and Meehl, 1955) and nothing but this construct. Churchill (1979, p.70) noted that the "construct validity is most directly related to the question of what the instrument is in fact measuring" and in order to confirm this validity, a construct should produce evidence of convergent validity and discriminant validity.

The convergent validity is established by the extent to which the items correlates highly with other items designed to measure the same construct (Churchill, 1979). It proves that items converge together and are related in the way they should be to operationalise the construct. As for the discriminant validity, Churchill (1979, p.70) stated that it is "the extent to which a measure is indeed novel and not simply a reflection of some other variable". It proves that items measuring a construct do not measure another construct.

In order to prove the convergent and the discriminant validity of a construct, there are numerous ways a researcher can use (Straub et al., 2004; Gefen et al., 2000): the Multitrait-Multimethod Matrix (MTMM) or the Principal Component Analysis (PCA).

The Multitrait-Multimethod Matrix (Campbell and Fiske, 1959) is a matrix of correlations between different measures where each measures is measured with different methods. This MTMM method does not have a well accepted statistical thresholds and its use in IS research is rare (Straub et al., 2004). Our research questionnaire makes the MTMM inadaptable to be employed.

The Principal Component Analysis (PCA), which is a method of factor analysis, is one of the favorite IS researcher method for verifying the construct validity (Bagozzi and Phillips, 1982; Kerlinger, 1986; Mackay, 1996). The primary objectives of a PCA are to determine the number of factors influencing a set of measures and the strength to the relationship between each factor and each observed measure. The PCA demonstrates the dimensionality of a measurement scale. It generates a "factor loadings" representing values of the underlying constructs, determines what features are most important when classifying a

group of items and examines the associations between variables, based on the correlations between them. The adequacy of the PCA towards our research methodology and its usefulness in validating the instruments guided us to its application. Next we will present its relating code and criterions for testing the convergent and discriminant construct validity.

6.2.2.1 CONVERGENT VALIDITY

The convergent validity is evidenced when items measuring the construct converge or show significant or high correlations. It enables to verify if the scale assesses the measured construct, and shows whether the construct is a one-dimensional. To do so, we proceed to a principal component analysis.

The analysis is divided into two stages. The first stage consists of analyzing the correlation matrix of the items measuring the variable. We can proceed to the next stage only when all items in the correlation matrix show a significant correlation by excluding the items that show a weak correlation.

The second stage of the analysis consists of a PCA, with a Varimax[6] rotation, applied on the remaining items in order to find out how many factors are important. The PCA analyses the total variance and attempts to explain the maximum amount of variance by the minimum number of underlying factors. There are three criterions based on which we will choose the factors.

- Communalities: the communality of an item is the proportion of its variance that can be accounted for by the factor (Evrard, 1993). It expresses the representation quality of the item in representing the factor. A communality upper than 0.5 is satisfactory.
- Total Variance Explained: it provides the Eigenvalue and the amount of variance explained by each factor in both the initial and the rotated solutions.

[6]Using a rotation typically provides with more interpretable factors by locating solutions with more extreme factor loadings. There are two broad classes of rotations: orthogonal and oblique. An orthogonal is preferred because the resulting factors will all be uncorrelated with each other indicating that each factor measures unique information, whereas the oblique rotation, factors will be correlated. Varimax is the most popular orthogonal rotation

The output (a table) lists the factors in order of how much variance each one explains. The most used rule for deciding how many factors will be retained is to take only factors with an Eigenvalue of 1 or greater and factors who can explain the maximum of the original variable (Diday et al., 1982). It should explain more than 50% of the original variable. The information presented in the Total Variance Explained can be represented in a graph, "scree plot".

- Component Matrix or Rotated Component Matrix: it displays the correlation of each item with one factor. It presents the factor loadings of each item. Factor loadings less than 0.3 are considered weak; loadings between 0.3 and 0.6 are considerate moderate, and loadings greater than 0.6 are considerate to be large.

The set of dimensions explored above enable to define a simple structure for each construct of the research, and result in justifying the convergent validity.

6.2.2.2 DISCRIMINANT VALIDITY

The discriminant validity will show to which degree of independence are the measures of the different theoretical constructs. It proves that constructs are distinct from each other.

In order to ensure the discriminant validity, a principal component analysis is made on all the items included on the convergent validity. This analysis should reveal the same number of factors we had in the previous stage, and shows that each item is highly correlated with the factor it belongs to, not to other factors. If the item shows a higher correlation with another factor than its initial one, we should proceed to excluding it from the future analysis.

Another test for confirming the discriminant validity of a construct is to use Fornell and Larker's (1981) AVE (Average Variance Extracted) criterion. This is the evaluation of variance shared between different constructs. The method suggests making comparison between the AVE of each factor and the variance shared between the constructs. To proceed to this test, we used a matrix of the square of the correlation of the constructs in which we replaced the diagonal with the AVE. The discriminant validity is confirmed when the AVE ($\rho_{vc(\eta)}$) is greater than the square of the correlation.

$$\rho_{vc(\eta)} = \frac{\sum_{i=1}^{p} \lambda_{yi}^2}{\sum_{i=1}^{p} \lambda_{yi}^2 + \sum_{i=1}^{p} Var(\varepsilon_i)}$$

In order to conclude that the research instrument is valid, the construct validity is a necessity but not sufficient; the reliability test is mandatory. The construct validity is an issue of measurement between constructs; reliability is an issue measurement within a construct.

6.2.3 RELIABILITY

The reliability of a measurement scale represents a measure of how much the variability in the observed scores actually represents variability in the underlying score. It is the ability of the questionnaire to consistently measure the topic under study at different times and across different populations (Cronbach, 1951; Nunnally, 1978). In general, there are five techniques used to assess the reliability: internal consistency, split-half, test-retest, alternative or equivalent forms, and inter-rater reliability (Straub et al., 2004). Boudreau et al. (2001) noted that 78% of the IS works that assessed reliability estimated reliability through the standard coefficient of internal consistency, Cronbach's Alpha.

We will adopt this technique to confirm the reliability in our research. This internal consistency verifies whether the respondents were consistent in responding to all items of the same construct. Cronbach's Alpha ranges from 0 to 1.

- 0.90 and above shows excellent reliability
- 0.70 to 0.90 shows high reliability
- 0.50 to 0.70 shows moderate reliability
- 0.50 and below shows low reliability

There is much debate among researchers as to where the appropriate cut-off points are for reliability. Evrard (1993) consider that a reliable Cronbach's Alpha for an exploratory research is between 0.60 and 0.80, and for a confirmatory study, this Alpha should be higher than 0.80. Nunnally (1978) state that 0.70 is the minimum level for a reliable measurement

scale. In our research, we will consider the same level as Nunnally's which also consists with other IS research.

Table 27 recapitulates the types and methods used in order to conclude with the instrument validity. Each type is detailed with its purpose, its' used method, and the criterion for the interpretation.

Table 27 Instrument Validity Tests

Type	Purpose	Method	Criterion (s)
Content Validity	The instrument is reasonable to capture a construct	Literature review Expert judgments	
Construct Validity: - **Convergent validity**	To confirm the one-dimension of a construct (or of each factor)	Correlation Matrix	All items should demonstrate a significant correlation
		Factor analysis: Principal Component Analysis	- Highest total explained variance - Eigenvalue > 1 - Communalities > 0.50 - High correlations between items of the same factor
Construct Validity: - **Discriminant validity**	To confirm that items of a factor are not correlated with another factor	Principal Component Analysis	Restitute the same number of factors
		Matrix of the squared correlation with the AVE as a diagonal	AVE > correlation^2
Reliability:	To confirm the internal consistency of the scale of measurement	Reliability Analysis: Cronbach's Alpha	Cronbach's Alpha > 0.70

The above tests result in confirming the validity and the reliability of the scale of measurement for each construct of the research. This stage is mandatory for the next stage,

the analysis of relationships and differences between the variables in order to validate our CRM Business Value research model.

6.3 STATISTICAL CONCLUSION VALIDITY

The testing of statistical hypotheses is based on the previous resulting factors. We confirmed that those factors are one-dimensional and are valid and reliable for statistical conclusion validity. The statistical conclusion validity refers to the ability to draw conclusions on the basis of statistical evidence of correlation as well as predictions between variables (Austin et al., 1998; Cook and Campbell, 1976; Scandura and Williams, 2000).

There are two possible conclusions that can issue subsequently: a statistically significant result, which shows that there is a relationship between the variables; and a non-significant result, which displays an uncertainty regarding whether or not there is a relationship between the variables. A significant result cause the confirmation of the tested hypothesis and the non-significant result means that the hypothesis is rejected.

For the purpose of assessing the statistical conclusion validity, Cook et al. (1990) noted that covariance is a necessary but not sufficient precondition for establishing a relationship. Scandura and Williams (2000) mentioned that the application of an appropriate statistical technique is a condition for assessing the validity. However, choosing a technique depends on many factors and requires a minimal sample size (Gefen et al., 2000; Scandura and Williams, 2000).

In accordance with our objective of the overall analysis and based on our sample size (39), the linear regression technique seems to be requisite[7].

[7] In their guidelines for research practice, Gefen et al. (2000) presented a comparative analysis between techniques used for data analysis in IS research. On page 9, they mentioned that the linear regression technique supports smaller sample size (than LISREL and PLS techniques). They mention that a sample of at least 30 is required for yielding to statistically significant results.

6.3.1 LINEAR REGRESSION TECHNIQUE

The regression analysis is an approach for the investigation of relationships between a dependent variable and one or more independent variables. A regression analysis with a single dependent variable is termed "simple regression".

SIMPLE REGRESSION OR MULTIPLE-REGRESSION

The main objective is to inquire about the causal effect of one or more variable(s) upon another. The regression assumes that the relationship between the independent variable(s) and the dependent variable is represented by the general equation:

$$Y_i = \beta_o + \beta_1 X_i + \beta_2 X_{i2} + \beta_3 X_{i3} + \ldots + \beta_n X_{in} + \varepsilon_i$$

Where Y is the value of the dependent variable, X is the value of the independent variable, β_o and β_1 are constants, and ε_i is the error in prediction.

Performing a regression means predicting the different parameters of β_i that will best predict the value of Y, and that based upon the information contained in the data set and upon some assumptions about the characteristics[8] regarding "ε_i". The resulting regression equation is:

$$Y_i = \beta_o + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \ldots + \beta_n X_{in}$$

As mentioned, the linear regression will identify the relationship between the dependent variable and the independent variable(s).

[8] The assumptions about the error terms ε_i are:

- The errors have a normal distribution
- The same amount of error in the model is found at each level of X
- The errors in the model are all independent.

And as a result, the term ε_i is ignored in the regression equation (Sykes, 1993).

TESTING LINEAR RELATIONSHIP

To confirm the linear relationship, or the direct relationship, of our CRM Business Value research model between the dependent variable and the independent variable(s), the linear regression analysis should be interpreted through three different stages (Evrard, 1993).

- The first interpretation phase concerns the model summary and shows:
  - ✓ The correlation coefficient (R) between the dependent variable and the independent variable(s). The value of R is between (-1) and (+1) and represent the strength of the correlation.
  - ✓ The first interpretation also includes R^2 which represents the amount of variance in the dependent variable that can be explained by the independent variable(s). This R^2 is sensitive to the number of variables and scores there are, and therefore we look at the significance of the regression model measured by F (test statistic Fisher Snedecor). We should verify the "null hypothesis" for which R^2 is zero for a *p* value less than 5%. The rejection of the "null hypothesis" can conclude that the regression is statistically significant.
- The second interpretation phase concerns the dependent variable(s). Each variable has a standardized coefficient β which is tested in order to keep the independent variables with a significant loading at *p* value < 0.05.
- The third interpretation phase allows verifying the hypothesis of autocorrelation in the residuals from the linear regression.

In the case of our research, testing linear relationships enables us to verify our direct-linkage hypotheses shown in the table below (Table 28).

Table 28 Research Hypotheses

Hypothesis	Dependent Variable	Independent Variable(s)
H1	CRM Collaborative Activity	Organizational CSF
H2	CRM Analytical Activity	Organizational CSF
H3	CRM Operational Activity	Organizational CSF

H4	CRM Collaborative Activity	Orientation CSF
H5	CRM Analytical Activity	Orientation CSF
H6	CRM Operational Activity	Orientation CSF
H7	CRM Collaborative Activity	Technological CSF
H8	CRM Analytical Activity	Technological CSF
H9	CRM Operational Activity	Technological CSF
H10	CRM Operational Activity	CRM Collaborative Activity
H11	CRM Operational Activity	CRM Analytical Activity
H12	Perceived Performance	CRM Collaborative Activity
H13	Perceived Performance	CRM Analytical Activity
H14	Perceived Performance	CRM Operational Activity
H15	Perceived Performance	Organizational CSF
H16	Perceived Performance	Orientation CSF
H17	Perceived Performance	Technological CSF

In order to validate the linear relationship between variables, we have proceeded to a two-step method. The first step consisted of testing the correlations (significance at the level 0.001/0.05) which permits to reveal the existence of a significant association between variables. The second step consists of the linear regression analysis in order to confirm and further investigate the relationship between the correlated variables.

When doing a multiple regression analysis, we have selected the Stepwise method which adds predictor variables to the regression that best correlate with dependent variable, and subtracts predictor variables that least correlate to finally generate a regression equation using only the predictor variables that make a significant contribution to the prediction.

In the linear regression method, an essential condition is that independent variables should be independent. To be in conformance with that condition, we rely on the Collinearity Statistics (Tolerance T >0.3 and VIF<3.3). In addition, we rely on the Durbin-Watson Test to verify the absence of correlation or independencies between the residuals (1.5<DW<2.5).

In the Table 29 we summarize the methods used to examine the different research hypotheses.

Table 29 Hypothesis Tests

Type	Purpose	Method	Criterion(s)
Correlation	To see whether there is a relationship between the variables	Pearson Correlation	The correlation value is significant[9] and positive
Linear Regression	To examine whether the independent variable reliably influences the dependent variable	Simple regression analysis	- F value and significance level value (p<0.05). - t value > 2 - 1.5 < D-W < 2.5
Multiple Regression	To identify the best independent predictor variable for the dependent variable	Multiple regression analysis using the Stepwise method	- Similar to linear regression criterions - Collinearity statistics (Tolerance and VIF)

- F: the ration of two mean squares. When the F value is large and the significance level is small, the null hypothesis can be rejected.
- t test: Statistic used to test the null hypothesis that there is no linear relationship between the dependent variable and the independent variable. When the significance level is small the coefficient is considered significant.
- D-W (Durbin-Watson): to test the correlated (or autocorrelated) residuals.
- Tolerance: a statistic used to determine how much the independent variables are linearly related to one another. A variable with very low tolerance contributes little information to a model.

[9] Correlation is significant at the 0.05 or 0.001 level (2-tailed)

- VIF: the reciprocal of the tolerance. As the variance inflation factor increases, so does the variance of the regression coefficient, making it an unstable estimate. Large VIF values are an indicator of multicollinearity.

This chapter outlined the research design, methodology, and data collection and analysis tools and method used in this study. The methodological choice, a quantitative empirical approach, was a justifiable decision, despite some of its limitations. The survey was the best approach to exploring the questions regarding the critical success factors and the Business Value of Information Systems and a hotel CRM approach that was the essence of this study.

Having discussed and justified the methodology employed to collect and analyze the data, we will present the analysis phase in the next chapter.

SECTION V DATA ANALYSIS AND RESULTS

1 RESEARCH DESCRIPTIVE ANALYSES

The construct is the population of interest in this analysis and needs to be operationalized. The descriptive analysis treats the construct validity and is completed through four phases. The first two phases were treated previously in this research. They are concerned with the predictive validity and the concurrent validity. In this part, we will consider the last two phases of the descriptive analysis. The first phase concerns the convergent validity of the variables; whereas the second phase consists of testing the discriminant validity.

1.1 CONVERGENT VALIDITY ANALYSIS

In the convergent validity analysis, we examine the degree to which the construct converges to other theoretically similar construct. Before starting the validity analysis of the research constructs, Table 30 recapitulates the constructs and the corresponding measurement references.

Table 30 Matrix of Constructs and Corresponding Measurement

Construct	# of items	Measurement of references
Organizational CSF		
Organizational system	6	Jayachandran et al., 2005
Top Management Support	6	Rai and Bajwa, 1997
Orientation CSF		
Customer orientation	6	Narver and Slater, 1990
Competitor orientation	4	Narver and Slater, 1990
Inter-functional coordination	5	Narver and Slater, 1990
Technological CSF		

End-user system satisfaction	12	Doll and Torkzadeh, 1988
ISD effectiveness	4	Thong et al., 1994
ISD support	6	Thong et al., 1994
CRM Analytical Activity	8	Jayachandran et al., 2005
CRM Operational Activity	9	Jayachandran et al., 2005
CRM Collaborative Activity	9	Jayachandran et al., 2005
Perceived Performance	11	Croteau and Li, 2003

1.1.1 SCALE OF MEASURE FOR THE "ORGANIZATIONAL CSF"

The construct "Organizational CSF" is composed by the two variables: Organizational System and Top Management Support.

We proceeded to a Principal Component Analysis on the 12 items measuring the Organizational CSF. This analysis displays four dimensions explaining 78.383% of the total explained variance. Consequently, we achieved another PCA while forcing to have 2 dimensions for the construct Organizational CSF. The second iteration did not result in an acceptable result since three items (os1, os5, and os6) displayed low communalities (<0.5). As a result, we carried a third iteration for the PCA. The results of the analysis are adequate since we found two dimensions that can explain 70.567% of the total explained variance of the original variable.

Those two components of the Organizational CSF are represented in the below table, and do correspond to the initial two variables: Organizational System and Top Management Support.

Table 31 Component Matrix for "Organizational CSF"

	Component	
	TMS	OS
tms1	,716	
tms2	,894	
tms3	,804	
tms4	,913	
tms5	,788	

tms6	,779	
os2		,805
os3		,886
os4		,683

1.1.1.1 SCALE OF MEASURE FOR "ORGANIZATIONAL SYSTEM"

The correlation matrix of the 3 items measuring organizational system shows that items are correlated. The KMO (0.613>0.5) and the test of sphericity (p<0.001) are satisfactory therefore we will proceed with our analysis.

Table 32 "Organizational System" Correlation Matrix

	os2	os3	os4
os2	1,000		
os3	,571	1,000	
os4	,334	,566	1,000

The principal component analysis (PCA) applied on those items reveals a single structure of component that explains 66.277% of the total variance. The loadings of the components of the structure as well as the communalities confirm the one-dimension of the component measuring Organizational System. We will refer to this dimension as **OS** in the rest of the research.

Table 33 "Organizational System" Scales of Measure

	OS Components	Communalities
os2	,775	,600
os3	,890	,792
os4	,772	,596
% explained variance	**66,277**	
Cronbach's Alpha	**,730**	

The Cronbach's Alpha (0,860) is highly reliable and confirms the internal consistency of the dimension.

1.1.1.2 SCALE OF MEASURE FOR "TOP MANAGEMENT SUPPORT"

The below correlation matrix, between the six items measuring the "top management support" construct, shows that items are significant and represent the construct.

Table 34 "Top Management Support" Correlation Matrix

	tms1	tms2	tms3	tms4	tms5	tms6
tms1	1,000					
tms2	,653	1,000				
tms3	,681	,635	1,000			
tms4	,520	,836	,631	1,000		
tms5	,303	,658	,505	,811	1,000	
tms6	,657	,533	,766	,654	,502	1,000

The factor analysis of the items (tms1, tms2, tms3, tms4, tms5, and tms6) confirms the existence of a unique factor which explains 68.859% of the total variance of the data.

Table 35 "Top Management Support" Scale of Measure

	TMS Components	Communalities
tms1	,763	,582
tms2	,872	,760
tms3	,849	,720
tms4	,900	,810
tms5	,760	,577
tms6	,826	,682
% explained variance	**68,859**	
Cronbach's Alpha	**,897**	

Cronbach's Alpha (0,897) confirms the internal consistency of the measurement scale of the "top management support" variable. In the remainder of the research, top management support will be represented by **TMS**.

1.1.2 SCALE OF MEASURE FOR "ORIENTATION CSF"

The second component of our conceptual research model is the Orientation CSF which is composed by the three variables: Customer Orientation, Competitor Orientation, and Inter-Functional Coordination.

We proceeded to a principal component analysis in order to identify the dimensions of our construct and to see whether it is linked to the theoretical maintained variables. The PCA reveals a structure of three dimensions for this construct that explains 74.988% of the total explained variable.

The structure of the Orientation CSF construct is presented below.

Table 36 Component Matrix for "Orientation CSF"

	Component		
	OC_Ic	OC_Cu	OC_Co
oc1		,581	
oc2		,708	
oc3		,729	
oc4		,502	
oc5		,596	
oc6		,877	
oc7			,513
oc8			,832
oc9			,913
oc10			,762
oc11			,795
oc12	,804		
oc13		,839	
oc14	,881		
oc15	,795		

We can see the first component which is represented by items oc12, oc14, and oc15 concerns the Inter-Functional Coordination aspect (OC_Ic). The second dimension which focuses on the Customer Orientation (OC_Cu) is measured by items oc1, oc2, oc3, oc4, oc5, oc6, and oc13. And items oc7, oc8, oc9, oc10, and oc11 constitute the final dimension which concerns the Competitor Orientation (OC_Co).

1.1.2.1 SCALE OF MEASURE FOR "CUSTOMER ORIENTATION"

The correlation matrix (below) of items measuring the customer orientation construct shows a significant correlation for all items. However, the communality concerning item oc3 (0.442) is under the criterion of 0.5 and it is recommended that we proceed to a new principal component analysis without taking into consideration this item.

Table 37 "Customer Orientation" Correlation Matrix

	oc1	oc2	oc3	oc4	oc5	oc6	oc13
oc1	1,000						
oc2	,819	1,000					
oc3	,642	,664	1,000				
oc4	,707	,788	,561	1,000			
oc5	,626	,739	,470	,731	1,000		
oc6	,478	,634	,261	,450	,603	1,000	
oc13	,519	,710	,261	,621	,711	,743	1,000

The factor analysis on the remaining items (oc1, oc2, oc4, oc5, oc6, and oc13) shows that the unique dimension of measurement explains 71,778% of the total variance. Whereas the previously performed PCA showed a unique dimension explaining 66,957% of the total variance. The communalities of the retained items (>0,579) and the superior explained variance support the choice of eliminating item "oc3" from the measurement scale of the customer orientation variable.

Table 38 "Customer Orientation" Scale of Measure

	OC_Cu Components	Communalities
oc1	,819	,671
oc2	,927	,860
oc4	,851	,724
oc5	,871	,759
oc6	,761	,579
oc13	,845	,714

% explained variance	**71,778**	
Cronbach's Alpha	**,912**	

The elevated Cronbach's Alpha (0,912) of the reliability test confirms the internal consistency of the measurement scale of the customer orientation variable, which will be referred to as **OC_Cu**.

1.1.2.2 SCALE OF MEASURE FOR "COMPETITOR ORIENTATION"

By observing the correlation matrix we can see that items measuring the Competitor Orientation construct are highly correlated. However, oc7 shows a low communality (0.460) and therefore we will proceed to a new PCA while discarding this item.

Table 39 "Competitor Orientation" Correlation Matrix

	oc7	oc8	oc9	oc10	oc11
oc7	1,000				
oc8	,618	1,000			
oc9	,584	,707	1,000		
oc10	,386	,619	,609	1,000	
oc11	,254	,656	,711	,621	1,000

Our sampling adequacy (KMO=0,832) and sphericity (p<0,001) are satisfactory, thus we will proceed with our analysis. The factor analysis reveals that a unique dimension has an Eigenvalue of 2,964 and accounts 74,090% of the total explained variance. The communalities and the component matrix of the 4 items validate the scale of measure for the competitor orientation.

Table 40 "Competitor Orientation" Scale of Measure

	OC_Co Components	Communalities
oc8	,867	,753
oc9	,882	,778
oc10	,822	,676
oc11	,870	,756
% explained variance	**74,090**	
Cronbach's Alpha	**,877**	

The reliability coefficient (Cronbach's Alpha) for all 4 items is 0,877 and indicates a scale of high reliability confirming the internal scale of measurement for the competitor orientation variable (**OC_Co**).

1.1.2.3 SCALE OF MEASURE FOR "INTER-FUNCTIONAL COORDINATION"

The correlation matrix on the 3 items measuring the inter-functional coordination variable displays a significant correlation for all items.

Table 41 "Inter-Functional Coordination" Correlation Matrix

	oc12	oc14	oc15
oc12	1,000		
oc14	,696	1,000	
oc15	,709	,848	1,000

The KMO and the Bartlett's Test are satisfactory, thus we will proceed in our analysis. The PCA reveals a single dimension for the construct that explains 83,478% of the total variance. The table below presents the retained scale of measure for the variable: Inter-Functional Coordination, which will be referred to from now on as **OC_Ic**.

Table 42 "Inter-Functional Coordination" Scale of Measure

	OC_Ic Components	Communalities
oc12	,872	,761
oc14	,931	,868
oc15	,936	,876
% explained variance	**83,478**	
Cronbach's Alpha	**,889**	

The internal consistency of the scale of measure of OC_Ic is confirmed by the Cronbach's Alpha (0,889).

1.1.3 SCALE OF MEASURE FOR "TECHNOLOGICAL CSF"

We will test the scale of measure concerning the third component of critical success factors in our conceptual research model, the Technological CSF. Variables End-User System Satisfaction (EUS), Consultant Effectiveness (Cons), and Vendor Support (Vend) constitute this construct.

The principal component analysis performed on the 21 items measuring the Technological CSF results in a three component structure that explains 84.188% of the total explained variance for the original variable. This structure of three confirms the adequacy of the three variables (EUS, Cons, and Vend) in measuring the Technological CSF construct. This structure is presented below.

Table 43 Component Matrix for "Technological CSF"

	Component		
	EUS	Vend	Cons
eus1	,738		
eus2	,727		
eus3	,599		
eus4	,740		
eus5	,824		
eus6	,823		
eus7	,720		
eus8	,764		
eus9	,886		
eus10	,825		
eus11	,552		
eus12	,711		
cons1			,916
cons2			,874
cons3			,893
cons4			,754
vend1		,796	
vend2		,784	
vend3		,811	
vend4		,858	
vend5		,867	

We will pass now to validating the scale of measure for the different dimensions of the Technological CSF construct.

1.1.3.1 SCALE OF MEASURE FOR "END-USER SYSTEM SATISFACTION"

The below correlation matrix of the items measuring the end-user system satisfaction variable shows items that are significantly correlated.

Table 44 "End-User System Satisfaction" Correlation Matrix

	eus1	eus2	eus3	eus4	eus5	eus6	eus7	eus8	eus9	eus10	eus11	eus12
eus1	1,000											
eus2	,761	1,000										
eus3	,508	,531	1,000									
eus4	,601	,591	,709	1,000								
eus5	,728	,681	,595	,730	1,000							
eus6	,645	,561	,548	,701	,865	1,000						
eus7	,633	,359	,372	,516	,600	,657	1,000					
eus8	,575	,756	,458	,492	,710	,672	,491	1,000				
eus9	,636	,668	,488	,604	,626	,714	,717	,696	1,000			
eus10	,536	,530	,496	,710	,552	,577	,571	,559	,809	1,000		
eus11	,471	,518	,368	,462	,578	,526	,087	,555	,383	,572	1,000	
eus12	,455	,598	,559	,752	,736	,702	,315	,693	,550	,636	,734	1,000

Items "eus3", "eus7", and "eus11" present a special case were their respective communality is below the criterion (0.5). Therefore, we proceeded to a second factor analysis while excluding those items.

The KMO (0,813>0,5) and the Bartlett's Test of Sphericity (p<,001) are suitable for the pursuit of the analysis. The factor analysis reveals, unlike the literature, that one component composes the measurement scale. Although Doll and Torkzadeh (1988) state that five dimensions structure the end-user system satisfaction variable, we will stick with the one-dimension found in the analysis, the explanation is next. When we forced a 5 dimensions extraction, the outcomes were not similar to the 5 dimensions of Doll and Torkzadeh (1988).

Moreover, the cumulative proportion of the explained variance (68,996%), met with the one-dimension (in our analysis), does satisfy the criterion of explaining 60% or more of the total variance. Additionally, the elevated loadings of the component matrix (>0,78) support the structure of the unique dimension.

The table below summarizes the resulting scale of measurement for the variable End-User System Satisfaction.

Table 45 "End-User System Satisfaction" Scales of Measure

	EUS Components	Communalities
eus1	,793	,629
eus2	,821	,674
eus4	,827	,684
eus5	,891	,793
eus6	,865	,748
eus8	,824	,679
eus9	,842	,710
eus10	,787	,620
eus12	,820	,672
% explained variance	**68,996**	
Cronbach's Alpha	**,942**	

The Cronbach's Alpha of the dimension confirms the internal consistency and supports our choice concerning the one-dimension of measurement for the variable "end-user system satisfaction". We will refer to this dimension in the rest of the research as **EUS**.

1.1.3.2 SCALE OF MEASURE FOR "ISD EFFECTIVENESS"

The correlation matrix of items measuring the ISD effectiveness proves that all 4 items (cons1, cons2, cons3, and cons4) have significant pair-wise correlations. The sampling adequacy and sphericity are satisfactory, thus we proceeded to the principal component analysis.

Table 46 "ISD Effectiveness" Correlation Matrix

	cons1	cons2	cons3	cons4
cons1	1,000			
cons2	,887	1,000		
cons3	,865	,876	1,000	
cons4	,710	,718	,793	1,000

The PCA proves that the structure of one-dimension is respected with the only component explaining 85,730% of the total variance of the original variable. The communalities and loading factors of the items confirm this structure. **Cons** will symbolize Information Systems Department Effectiveness.

Table 47 "ISD Effectiveness" Scale of Measure

	Cons Components	Communalities
cons1	,937	,879
cons2	,943	,888
cons3	,956	,914
cons4	,865	,748
% explained variance	**85,730**	
Cronbach's Alpha	**,943**	

The internal consistency of this measurement scale is confirmed by the high reliability of the Cronbach's Alpha (0,943).

1.1.3.3 SCALE OF MEASURE FOR "ISD SUPPORT"

The correlation matrix of items measuring the ISD support proves that all 6 items (vend1, vend2, vend3, vend4, vend5, and vend6) have significant pair-wise correlations.

Table 48 "ISD Support" Correlation Matrix

	vend1	vend2	vend3	vend4	vend5	vend6
vend1	1,000					
vend2	,893	1,000				
vend3	,891	,846	1,000			
vend4	,631	,641	,669	1,000		
vend5	,688	,673	,683	,942	1,000	
vend6	,840	,766	,812	,783	,745	1,000

The sampling adequacy and sphericity are satisfactory, thus we proceeded to the principal component analysis. This analysis confirms a one-dimension of the structure measuring the original variable. This dimension explains 80,626% of the total variance of the original variable. The communalities and loading factors of the items confirm this structure. **Vend** will symbolize Information Systems Department Support.

Table 49 "ISD Support" Scale of Measure

	Vend Components	Communalities
vend1	,920	,847
vend2	,896	,803
vend3	,912	,832
vend4	,863	,744
vend5	,875	,766
vend6	,919	,845
% explained variance	**80,626**	
Cronbach's Alpha	**,949**	

Cronbach's Alpha (0,949) confirms the internal consistency of the dimension measuring the vendor support variable.

1.1.4 SCALE OF MEASURE FOR "CRM COLLABORATIVE ACTIVITY"

The correlation matrix concerning the items measuring the CRM collaborative activity of the organization reveals that items crm8 and crm9 are weakly correlated with other items. Consequently, we eliminated those two items and proceeded to a new factor analysis of the items measuring the variable "CRM Collaborative Activity". The KMO and the test of sphericity are satisfactory thus we proceeded with our analysis.

The principal component analysis reveals that two dimensions structure the scale of measurement of the original variable and can explain 71,487% of the total variance of our variable. The communalities and the loadings of the component matrix support this structure and consequently we will adopt it, comparable to the two dimensions in the literature.

- The first dimension explains 45,966% of the total variance. The items included in this dimension are crm3, crm4, crm5, crm6, and crm7. Those items measure the **reciprocity and capture** aspects of the CRM collaborative activity. We will refer to this dimension as **CRM_RC**.
- The second dimension, which contains items crm1 and crm2, explains 25,521% of the total variance. This dimension measures the **communication channels** of the CRM collaborative activity of the organization. This dimension will be denoted **CRM_CC**.

Table 50 "CRM Collaborative Activity" Scale of Measure

	crm1	crm2	crm3	crm4	crm5	crm6	crm7	crm8	crm9
crm1	1,000								
crm2	,936	1,000							
crm3	,254	,205	1,000						
crm4	,256	,253	,719	1,000					
crm5	,115	,150	,514	,571	1,000				
crm6	,141	,134	,491	,411	,368	1,000			
crm7	,004	,034	,452	,486	,370	,645	1,000		
crm8	-,063	-,143	,161	,172	,448	,385	,176	1,000	
crm9	,367	,274	,394	,521	,418	,302	,172	,138	1,000

The next table gives a clear view of the scales of measurement concerning the CRM collaborative variable after a varimax rotation.

Table 51 "CRM Collaborative Activity" Scales of Measure

	CRM_RC Components	CRM_CC Components	Communalities
crm1		,976	,961
crm2		,970	,949
crm3	,804		,687
crm4	,803		,697
crm5	,710		,513
crm6	,753		,568
crm7	,785		,629
% explained variance	**45,966**	**25,521**	**71,487**
Cronbach's Alpha	**,821**	**,967**	

The elevated Cronbach's Alpha of both measurement scale (0,821) and (0,967) indicate a high reliability of the dimensions and proves the internal consistency of their respective items.

1.1.5 SCALE OF MEASURE FOR "CRM ANALYTICAL ACTIVITY"

The correlation matrix of the items measuring the CRM Analytical Activity of the organization shows that crm11 and crm12 present a low correlation with other items. Moreover, the first iteration of the principal component analysis revealed that items crm11 and crm12 form a dimension which explains 16,243% of the total variance. Thus we have proceeded to the reliability analysis of this dimension which resulted in a low Cronbach's Alpha (0,492) that shows a low reliability and does not demonstrate the internal consistency of the scale. Furthermore, the KMO is 0,464 a value less than the required (0,5) to prove the sample adequacy.

All the mentioned above results led us to eliminate the two items crm11 and crm12 from our scale of measurement analysis and to start a new factor analysis without those two items. The second factor analysis revealed a correlation matrix that illustrates significant correlations between the 6 remaining items (crm10, crm13, crm14, crm15, crm16, and crm17) measuring the variable.

The sample adequacy is acceptable revealing a KMO (0,594) greater than 0.5. The Bartlett's Test of sphericity shows a *p* value <0.05 which indicates that it makes sense to continue with the factor analysis.

Table 52 "CRM Analytical Activity" Correlation Matrix

	crm10	crm11	crm12	crm13	crm14	crm15	crm16	crm17
crm10	1,000							
crm11	,000	1,000						
crm12	-,055	,326	1,000					
crm13	,354	,056	,330	1,000				
crm14	,394	,020	,015	,264	1,000			
crm15	,165	-,200	,022	,732	,354	1,000		
crm16	,721	-,108	-,026	,197	,681	,104	1,000	
crm17	,658	,059	,078	,421	,326	,483	,441	1,000

The principal component analysis reveals that two components of the initial structure explain 74,899% of the total explained variance. The satisfactory loadings of the components and the good communalities maintain the two dimensions structure of the CRM Analytical Activity measurement.

- The first dimension explains 51,883% of the total variance. This dimension gathers items crm10, crm14, crm16, and crm17 and measures the analyzed **information access** aspects in the CRM Analytical Activity. We will refer to this dimension as **CRM_IA**.

- The second dimension explains 23,016% of the total variance. The items that are related to this dimension measure the analyzed **information sharing** in the CRM Analytical Activity. They are crm13 and crm15. We will use **CRM_IS** to denote this dimension.

Table 53 summarizes the dimensions for the measurement of the CRM Analytical Activity variable.

Table 53 "CRM Analytical Activity" Scales of Measure

	CRM_IA Components	CRM_IS Components	Communalities
crm10	,849		,753
crm14	,714		,552

crm16	,939		,882
crm17	,594		,619
crm13		,883	,808
crm15		,934	,879
% explained variance	**51,883**	**23,016**	**74,899**
Cronbach's Alpha	**,820**	**,844**	

The respective Cronbach's Alpha indicates a scale of high reliability and verifies the internal consistency of both dimensions.

1.1.6 SCALE OF MEASURE FOR "CRM OPERATIONAL ACTIVITY"

The correlation matrix of the initial items measuring the CRM Operational Activity of the organization shows that item crm24 presents the weakest correlation. The item crm24 shows a low measured communality as well as a weak factor loading (0,573) in measuring the original variable causing a new analysis excluding this item (crm24).

We proceeded to a second analysis, in which all items showed significant pair-wise correlations. The check of the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) and the Bartlett's Test of sphericity were satisfactory, thus we proceeded with our analysis.

The principal component analysis shows a unique dimension that explains 70,861% of the total variance of the original variable. This % of variance is better than the one we found when performing the PCA on all items including crm24. It was 66,199%.

The communality value of each item (greater than 0,605) as well as the factor loading (greater than 0,778) confirms the one-dimension structure of the scale of measurement for the variable "CRM Operational Activity" (**CRM_O**). Table 54 summarizes this scale.

Table 54 "CRM Operational Activity" Correlation Matrix

	crm18	crm19	crm20	crm21	crm22	crm23	crm24	crm25	crm26
crm18	1,000								
crm19	,791	1,000							
crm20	,645	,744	1,000						

crm21	,591	,604	,565	1,000					
crm22	,705	,734	,429	,734	1,000				
crm23	,757	,599	,585	,572	,611	1,000			
crm24	,377	,409	,518	,414	,341	,403	1,000		
crm25	,766	,612	,610	,593	,706	,706	,461	1,000	
crm26	,677	,753	,684	,643	,724	,626	,470	,857	1,000

Table 55 "CRM Operational Activity" Scale of Measure

	CRM_O Components	Communalities
crm18	,884	,782
crm19	,869	,755
crm20	,778	,605
crm21	,783	,613
crm22	,840	,706
crm23	,809	,655
crm25	,873	,762
crm26	,889	,790
% explained variance	**70,861**	
Cronbach's Alpha	**,936**	

The Cronbach's Alpha of 0,936 confirms the internal consistency of the dimension.

1.1.7 SCALE OF MEASURE FOR "PERCEIVED PERFORMANCE"

The correlation matrix (

Table 56) shows significant correlations between all items measuring the perceived performance variable.

Table 56 "Perceived Performance" Correlation Matrix

	perf1	perf2	perf3	perf4	perf5	perf6	perf7	perf8	perf9	perf10	perf11

perf1	1,000										
perf2	,651	1,000									
perf3	,624	,705	1,000								
perf4	,513	,515	,791	1,000							
perf5	,569	,652	,786	,764	1,000						
perf6	,604	,428	,625	,598	,414	1,000					
perf7	,718	,544	,606	,511	,434	,795	1,000				
perf8	,638	,588	,624	,457	,441	,604	,659	1,000			
perf9	,398	,234	,558	,607	,414	,659	,492	,702	1,000		
perf10	,671	,370	,486	,539	,486	,457	,686	,791	,672	1,000	
perf11	,624	,580	,885	,791	,724	,571	,606	,683	,657	,662	1,000

The principal component analysis reveals a perceived performance structure composed by two dimensions explaining 74,347% of the total variance.

- The first dimension explains 63,679% of the total variance. The items measuring this dimensions concern the perceived performance from a **Customer focus**. This dimension meets with the original dimension of the perceived performance defined by Croteau and Li (2003). Items included in this dimension are perf6, perf7, perf8, perf9, and perf10. We will refer to this dimension as **Perf_Cus**.

- The second dimension which explains 10,669% of the total variance measure the perceived performance from an **Organizational focus** (Croteau and Li, 2003). **Perf_Org** will refer to this dimension which contains items perf1, perf2, perf3, perf4, perf5, and perf11.

The table below reviews the scale of measurement for the perceived performance variable.

Table 57 "Perceived Performance" Scale of Measurement

	Perf_Cus	Perf_Org	Communalities
perf1		,532	,639
perf2		,782	,668
perf3		,845	,883

perf4		,760	,734
perf5		,891	,836
perf11		,721	,818
perf6	,737		,661
perf7	,771		,772
perf8	,821		,781
perf9	,799		,686
perf10	,826		,751
% explained variance	**63,679**	**10,669**	**74,347**
Cronbach's Alpha	**,902**	**,927**	

The factors loadings as well as the communalities of the items confirm the one-dimension of construct Perf_Cus and Perf_Org. Additionally; the Alpha score for each measure indicates a scale of high reliability validating the internal consistency of the two dimensions.

After having proved the convergent validity of all constructs of the research, we will verify the discriminant validity of the two groups of constructs.

1.2 DISCRIMINANT VALIDITY ANALYSIS

In the discriminant validity analysis, we examine the degree to which constructs are not similar among each other and that each construct allow to measure different phenomenon (Evrard, 1993).

The discriminant validity was assessed using Fornell and Larcker (1981) AVE (Average Variance Extracted) criterion. It is satisfactory when the square of the correlation of two constructs is smaller than the AVE ($\rho_{vc(\eta)}$) (Convergent Validity Rho). It is calculated using the following formula.

$$\rho_{vc(\eta)} = \frac{\sum_{i=1}^{p} \lambda_{yi}^2}{\sum_{i=1}^{p} \lambda_{yi}^2 + \sum_{i=1}^{p} Var(\varepsilon_i)}$$

Where η is the construct; y_i is the individual indicators.

The following 2 tables display the AVE calculated of each construct and confirm the discriminant validity of all the measurement scales.

Table 58 Discriminant Validity of the scale of measurement

	ρ_{vc}	OS	TMS	OC_Cu	OC_Co	OC_Ic	EUS	Cons	Vend
OS	0,663	1,000							
TMS	0,689	0,088	1,000						
OC_Cu	0,718	0,225	0,219	1,000					
OC_Co	0,741	0,211	0,097	0,150	1,000				
OC_Ic	0,834	0,169	0,176	0,472	0,236	1,000			
EUS	0,690	0,132	0,126	0,385	0,347	0,331	1,000		
Cons	0,857	0,135	0,040	0,034	0,123	0,091	0,154	1,000	
Vend	0,806	0,382	0,101	0,151	0,164	0,092	0,263	0,340	1,000

Table 59 Discriminant Validity of the scale of measurement

	ρ_{vc}	CRM_CC	CRM_RC	CRM_IA	CRM_IS	CRM_O
CRM_CC	0,947	1,000				
CRM_RC	0,596	0,027	1,000			
CRM_IA	0,616	0,025	0,206	1,000		
CRM_IS	0,826	0,029	0,046	0,124	1,000	
CRM_O	0,708	0,039	0,460	0,297	,216	1,000

The above tables confirm that discriminant validity is demonstrated in our research, in that unrelated constructs exhibit adequate low correlations.

1.3 FINAL MEASUREMENT MODEL

The descriptive analyses have permitted to establish the reliability and the validity (convergent and discriminant) of the scales of measure selected during the conceptual model. Thus, we can proceed to test our hypotheses.

The result of the principal component analyses puts on view all 13 research variables. Ten variables of the conceptual model are one-dimensional and 3 are bi-dimensional. Table 60 summarizes the final measurement model items, loadings and significance values.

Table 60 Final Measurement Model

Factor/Construct	Code	Items	Total explained variance	Cronbach's Alpha
Organizational CSF			**78,383%**	
Organizational System	OS	os2, os3, os4	**66,277%**	**0,730**
Top Management Support	TMS	tms1, tms2, tms3, tms4, tms5, tms6	**68,859%**	**0,897**
Orientation CSF			**74,988%**	
Customer Orientation	OC_Cu	oc1, oc2, oc4, oc5, oc6, oc13	**71,778%**	**0,912**
Competitor Orientation	OC_Co	oc8, oc9, oc10, oc11	**74,090%**	**0,877**
Inter-Functional Coordination	OC_Ic	oc12, oc14, oc15	**83,478**	**0,889**
Technological CSF			**84,188%**	
End-User System Satisfaction	EUS	eus1, eus2, eus4, eus5, eus6, eus8, eus9, eus10, eus12	**68,996**	**0,942**
ISD Effectiveness	Cons	cons1, cons2, cons3, cons4	**85,730%**	**0,943**
ISD Support	Vend	vend1, vend2, vend3, vend4,	**80,626**	**0,949**

		vend5, ven6		
CRM Collaborative Activity			**71,487%**	
	CRM_CC	crm1, crm2	**25,521%**	**0,967**
	CRM_RC	crm3, crm4, crm5, crm6, crm7	**45,966%**	**0,821**
CRM Analytical Activity			**74,899%**	
	CRM_IA	crm10, crm14, crm16, crm17	**51,883%**	**0,820**
	CRM_IS	crm13, crm15	**23,016%**	**0,844**
CRM Operational Activity				
	CRM_O	crm18, crm19, crm20, crm21, crm22, crm23, crm25, crm26	**70,861**	**0,936**
Perceived Performance			**74,347**	
	Perf_Org	perf1, perf2, perf3, perf4, perf5, perf11	**10,669%**	**0,927**
	Perf_Cus	perf6, perf7, perf8, perf9, perf10	**63,679%**	**0,902**

2 RESEARCH EXPLICATIVE ANALYSES

The research explicative analyses are aimed to verify our research hypotheses concerning the Business Value of the CRM and its' critical success factors.

As stated earlier in our research, we have 17 major hypotheses to test. Those hypotheses are divided into two categories:

- H1, H2, H3, H4, H5, H6, H7, H8, H9, H10, and H11 are hypotheses related to the Critical Success Factors of the CRM approach.

- **H1: the Organizational CSF influence directly and positively the CRM Collaborative activity.**
- **H2: the Organizational CSF influence directly and positively the CRM Analytical activity.**
- **H3: the Organizational CSF influence directly and positively the CRM Operational activity.**
- **H4: the Orientation CSF influence directly and positively the CRM Collaborative activity.**
- **H5: the Orientation CSF influence directly and positively the CRM Analytical activity.**
- **H6: the Orientation CSF influence directly and positively the CRM Operational activity.**
- **H7: the Technological CSF influence directly and positively the CRM Collaborative activity.**
- **H8: the Technological CSF influence directly and positively the CRM Analytical activity.**
- **H9: the Technological CSF influence directly and positively the CRM Operational activity.**
- **H10: the Collaborative CRM activity influence directly and positively the CRM Operational activity.**
- **H11: the Analytical CRM activity influence directly and positively the CRM Operational activity.**

- H12, H13, H14, H15, H16, and H17 are concerned with the Business Value of the CRM approach.

  - **H12: the CRM Collaborative activity influences directly and positively the organizational perceived performance.**

- **H13: the CRM Analytical activity influences directly and positively the organizational perceived performance.**
- **H14: the CRM Operational activity influences directly and positively the organizational perceived performance.**
- **H15: the Organizational CSF influences directly and positively the organizational perceived performance.**
- **H16: the Orientation CSF influences directly and positively the organizational perceived performance.**
- **H17: the Technological CSF influences directly and positively the organizational perceived performance.**

Before proceeding to the hypotheses test, we will mention that according to the research descriptive analyses results, the CRM Collaborative activity, the CRM Analytical activity, and the organizational Perceived Performance are each composed by two dimensions. Therefore, related hypothesis will be tested on both dimensions.

The first step in testing the hypothesis would be to analyze whether postulated variables present a significant correlation. Therefore, a correlation matrix concerning the different studied factors seems to be indispensable in order to check whether factors are correlated or not. We will present two correlation matrixes. The first correlation matrix concerns the 7 original variables conceptualized in our conceptual research model, and the second one will enclose the factors that resulted from the descriptive analysis.

The first correlation matrix shows that Organizational CSF construct does not significantly correlate with CRM Collaborative activity neither with the CRM Analytical activity. Consequently, hypotheses **H1 and H2 are rejected**.

Furthermore, CRM Collaborative activity does not display a significant positive correlation with the organizational Perceived Performance; hence hypothesis **H12 is also rejected.**

Table 61 Correlation Matrix Conceptual Constructs

	CSF_ORGA	CSF_ORIEN	CSF_TECH	CRM_Collaborative	CRM_Analytical	CRM_O	Perceived_Performance
CSF_ORGA	1						
CSF_ORIEN	,637**	1					
CSF_TECH	,581**	,578**	1				
CRM_Collaborative	*,284*	,380*	,625**	1			
CRM_Analytical	*,204*	,413**	,426**	,392*	1		
CRM_O	,431**	,664**	,485**	,547**	,606**	1	
Perceived_Performance	,453**	,417**	,417*	*,298*	,403*	,389*	1

**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).

In the below table, we have underlined non significant correlation that we will make reference to during the analyses.

Table 62 Correlation Matrix Detailed Constructs

	CSF_ORGA	CSF_ORIEN	CSF_TECH	CRM_CC	CRM_RC	CRM_IA	CRM_IS	CRM_O	Perf_Org	Perf_Cus
CSF_ORGA	1									
CSF_ORIEN	,637**	1								
CSF_TECH	,581**	,578**	1							
CRM_CC	*-,035*	*,183*	,473**	1						
CRM_RC	,520**	,423**	,478**	,186	1					
CRM_IA	*,253*	*,289*	,383*	,175	,464**	1				
CRM_IS	*,102*	,383*	,326*	,187	,228	,362*	1			
CRM_O	,431**	,664**	,485**	*,198*	,678**	,545**	,465**	1		
Perf_Org	,430**	*,269*	*,281*	*-,011*	*,317*	*,281*	*,168*	*,269*	1	
Perf_Cus	,416**	,502**	,494**	*,187*	,392*	,326*	,445**	,465**	,742**	1

**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).

In the following sections, we will proceed to test our research hypotheses, and all the hypotheses that could have been generated consequent to the research descriptive analysis. A general research hypothesis may have sub-hypotheses due to the fact that the variables in question in the hypothesis have yielded into more than one dimension leading the application of the general hypothesis on the different dimensions.

2.1 ORGANIZATIONAL CSF AND CRM OPERATIONAL ACTIVITY

In this section, we will test hypothesis H3 which states that the Organizational CSF (CSF_ORGA) influence directly and positively the CRM Operational activity (CRM_O).

Table 63 Simple Regression Results (testing H3)

	CSF_ORGA					
CRM_O	0,431**	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,186	7,982	0,008	2,825	2,023
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The above table shows the results of the simple regression of CRM_O on CSF_ORGA. This table shows the significant positive correlation (r=0,431) between CSF_ORGA and CRM_O. This correlation indicates that as CSF_ORGA increases the CRM_O also increases. The above table shows that 18.6% from the amount of the variance in the dependent variable (CRM_O) can be explained by the independent variable CSF_ORGA. The results also show that F=7,982, p=0.008<0.05, and t=2,825<2, and therefore we can conclude that the regression is statistically significant. The regression equation would be:

CRM_O = 2,419 + 0,418 CSF_ORGA

The above results prove that the CSF_ORGA predict reliably the CRM Operational activity; hence we can conclude that **hypothesis H3 is confirmed**.

CONCLUSION ON THE RELATIONSHIP BETWEEN ORGANIZATIONAL CSF AND CRM OPERATIONAL ACTIVITY

The CSF_ORGA influences directly and positively the Operational CRM activity. Organizational System cannot independently predict the variance of Operational CRM activity; while TMS can do so (refer to appendix B).

2.2 ORIENTATION CSF AND CRM COLLABORATIVE ACTIVITY

The correlation matrix concerning the conceptual constructs shows that CSF_ORIEN and CRM_Collaborative are significantly correlated. This correlation indicates that as CSF_ORIEN increases CRM Collaborative activity also increases, and this is a positive correlation with r=0,380.

Table 64 Simple Regression Results (testing H4)

	CSF_ORIEN					
CRM_Collaborative	0,380*	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,144	6,232	0,017	2,496	2,056
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The results above show the correlation between the dependent variable (CRM_Collaborative) and the independent variable (CSF_ORIEN). We can also see that the independent variable can explain 14.4% of the amount of variance in the dependent variable. Moreover, the above results confirm that the regression is statistically significant since F=6,232, $p<0.05$ and t>2. The equation of the regression is:

CRM_Collaborative = 2,065 + 0,430 CSF_ORIEN

As a conclusion of the above results, we can say that **hypothesis H4 is confirmed**.

Now, we will look further into this relationship to examine whether CSF_ORIEN can predict both CRM_Collaborative dimensions: CRM_CC and CRM_RC. We will define H4' and H4" the two concerning investigations.

- H4': the CSF_ORIEN influences directly and positively CRM_CC (CRM Communication Channels)
- H4": the CSF_ORIEN influences directly and positively CRM_RC (CRM Reciprocity and Capture).

2.2.1 ORIENTATION CSF AND CRM COLLABORATIVE DIMENSIONS

According to the correlation matrix of the detailed constructs presented earlier, we can notice that CSF_ORIEN is not significantly correlated with CRM_CC, thus we won't investigate H4'. Contrary to, CSF_ORIEN and CRM_RC display a positive significant correlation (r=0,423).

A simple regression of CRM_RC on CSF_ORIEN can indentify if the independent variable CSF_ORIEN is linked to the dependent variable and can predict any variance change.

Table 65 Simple Regression Result (investigating H4")

	CSF_ORIEN					
CRM_RC	0,423**	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,179	8,058	0,007	2,839	2,136

**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).

The above results prove that CRM_RC is linked to CSF_ORIEN, and whenever CSF_ORIEN increases, CRM_RC increases too. Moreover, the Orientation CSF construct can reliably predict the CRM Reciprocity and Capture since the regression is statistically significant (F=8,058, $p<0.05$, and $t>2$). As a result, we can say that H4" is supported and CSF_ORIEN influences directly and positively the CRM_RC.

CONCLUSION ON THE RELATIONSHIP BETWEEN ORIENTATION CSF AND CRM COLLABORATIVE ACTIVITY

The above section addressed hypothesis H4 and its descents. As a conclusion, we can say that Orientation CSF influences directly and positively the CRM Collaborative activity. As for the dimensions of the CRM Collaborative activity, CSF_ORIEN influences directly

and positively the CRM_RC (reciprocity and capture) and not the CRM_CC (communication channels). The variable OC_Cu of the construct CSF_ORIEN best predicts the CRM_Collaborative variable and the CRM_RC variable (refer to appendix B).

2.3 ORIENTATION CSF AND CRM ANALYTICAL ACTIVITY

In this section, we will test hypothesis H5 which proposes that the Orientation CSF (CSF_ORIEN) influences directly and positively the CRM Analytical activity (CRM_Analytical). The correlation matrix of the conceptual constructs presented earlier proves that the two variables are significantly correlated, and r=0,413. The first step in our analysis would be to test the regression of the dependent variable CRM_Analytical on the independent variable CSF_ORIEN. This analysis will enable us to confirm or reject hypothesis H5.

The table below shows the correlation between CSF_ORIEN and CRM_Analytical. It also shows that 17.1% of the amount of variance in the dependent variable (CRM_Analytical) can be explained by the CSF_ORIEN variable. F=7,606, p<0.05, and t>2, and therefore we can conclude that the regression is statistically significant.

Table 66 Simple Regression CRM_Analytical on CSF_ORIEN (testing H5)

	CSF_ORIEN					
CRM_Analytical	0,413**	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,171	7,606	0,009	2,758	2,009
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The CSF_ORIEN can reliably predict the CRM_Analytical variable, and the regression equation is:

CRM_Analytical = 1,993 + 0,462 CSF_ORIEN

As a conclusion of the above results, we can say that **hypothesis H5 is confirmed**.

As we have mentioned earlier, during the hypothesis analysis and according to the results we have obtained in the descriptive analysis phase, we will proceed to examining the propositions that drop from the general hypothesis. In the case of the CSF_ORIEN relationship with CRM_Analytical, CSF_ORIEN is believed to influence directly and positively the two dimensions of the CRM Analytical activity; the Information Access and the Information Sharing.

- H5': the CSF_ORIEN influences directly and positively CRM_IA (Information Access)
- H5": the CSF_ORIEN influences directly and positively CRM_IS (Information Sharing)

2.3.1 ORIENTATION CSF AND CRM ANALYTICAL DIMENSIONS

The correlation matrix of the detailed constructs shows that CSF_ORIEN and CRM_IA are not significantly correlated. Consequently we will not examine H5'. On the other hand, we will examine H5" since CSF_ORIEN and CRM_IS are significantly and positively correlated (r=0,383).

Table 67 Simple Regression of CRM_IS on CSF_ORIEN (investigating H5")

	CSF_ORIEN					
CRM_IS	0,383*	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,147	6,379	0,016	2,526	1,817
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The table above shows the correlation of CSF_ORIEN and CRM_IA. This correlation indicates that when CSF_ORIEN increases, CRM_IA also increases. R^2 indicates that the independent variable CSF_ORIEN can explain 14.7% of the amount of variance in the dependent variable CRM_IA. The above regression is statistically significant because F=6,379, $p<0.05$, and t>2. This result supports the proposition that CSF_ORIEN influence directly and positively CRM_IA (H5").

CONCLUSION OF THE RELATIONSHIP BETWEEN ORIENTATION CSF AND CRM ANALYTICAL ACTIVITY

The above section consisted of testing hypothesis H5 which was confirmed. And as a result, we can say that Orientation CSF influences directly and positively the CRM Analytical activity. However, although the Orientation CSF is linked to the CRM Analytical activity, it does not predict the CRM Information Access variable. It does only predict the CRM_IS variable with OC_Ic variable being the best predictor for that relationship (refer to appendix B).

2.4 ORIENTATION CSF AND CRM OPERATIONAL ACTIVITY

We will test hypothesis H6 (Orientation CSF influences directly and positively the CRM Operational activity).

Table 68 Simple Regression of CRM_O on CSF_ORIEN (testing H6)

	CSF_ORIEN					
CRM_O	0,664**	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,441	28,396	0,000	5,329	2,182
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The above table shows that CRM_O increases when CSF_ORIEN increases, and that is according to the significant and positive correlation (r=0,664). We can also note that 44.1% of the amount of variance in the dependent variable CRM_O can be explained by the independent variable CSF_ORIEN. We can see from the above table that F=28,396, $p<0.001$, and t>2, and therefore we can conclude that the regression is statistically significant. The regression equation is:

CRM_O = 1,082 + 0,716 CSF_ORIEN

The above analysis enables us to conclude that **hypothesis H6 is confirmed**. The Orientation CSF influences directly and positively the Operational CRM activity.

CONCLUSION ON THE RELATIONSHIP BETWEEN ORIENTATION CSF AND CRM OPERATIONAL ACTIVITY

The results of the above analysis confirmed hypothesis H6 and has identified that OC_Ic is the best variable, among the CSF Orientation factors, that can independently best predict the CRM Operational activity (refer to appendix B).

2.5 TECHNOLOGICAL CSF AND CRM COLLABORATIVE ACTIVITY

We will test hypothesis H7 which mentions that the technological CSF (CSF_TECH) influences directly and positively CRM Collaborative activity (CRM_Collaborative).

We have previously identified a positive correlation between the two variables CSF_TECH and CRM_Collaborative. To further investigate this relationship by examining the hypothesis H7, we use a linear regression.

Table 69 Simple Regression CRM_Collaborative on CSF_TECH (testing H7)

	CSF_TECH					
CRM_Collaborative	0,625**	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,391	22,455	0,000	4,739	2,088
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The value 0.625 indicates that as CSF_TECH increases the CRM_Collaborative also increases, and this is a positive correlation with r=0.625. The independent variable CSF_TECH accounts for 39.1% of the variance in the CRM_Collaborative variable. The above table shows that the regression is statistically significant because F=11,455, $p<0.001$, and t>2. The equation of the regression is:

CRM_Collaborative = 1,374 + 0,687 CSF_TECH

From the above results we can conclude that **hypothesis H7 is confirmed**.

In harmony with the previous analyses, we will examine the resulted hypotheses according to the descriptive analysis.

- H7': the Technological CRM influences directly and positively the CRM_CC (communication channels)
- H7": the Technological CRM influences directly and positively the CRM_RC (reciprocity and capture).

2.5.1 TECHNOLOGICAL CSF AND CRM COLLABORATIVE DIMENSIONS

The correlation matrix of the detailed constructs reveals that both dimensions of the CRM Collaborative activity (CRM_CC, and CRM_RC) display a positive and significant correlation with CSF_TECH. Thus we will proceed to examine H7' and H7".

TECHNOLOGICAL CSF AND CRM_CC (H7')

A simple regression of CRM_CC on CSF_TECH enables us to bring support to H7' or reject it.

Table 70 Simple Regression of CRM_CC on CSF_TECH (investigating H7')

CSF_TECH						
CRM_CC	0,473**	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,224	10,091	0,003	3,177	2,032
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The table above proves that the regression is statistically significant (F=10,091, $p<0.05$, and t>2) and therefore we can concluded that H7' is supported. CSF_TECH can explain 22.4% of the amount of variance in the dependent variable CRM_CC and influences it directly and positively.

TECHNOLOGICAL CSF AND CRM_RC (H7")

We will examine the relationship between Technological CSF (CSF_TECH) and CRM Reciprocity and Capture (CRM_RC). The correlation matrix of the detailed constructs revealed a positive and significant correlation between those two variables.

Table 71 Simple Regression of CRM_RC on CSF_TECH (investigating H7")

CSF_TECH						
CRM_RC	0,478**	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,229	10,379	0,003	3,222	2,100
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The simple-regression results shown in the above table reveal that 22.9% of the amount of variance in the dependent variable CRM_RC can be explained by the independent variable CSF_TECH. The regression is statistically significant since F=10,379, $p<0.05$, and t>2, and consequently we can say that H7" is supported and the Technological CSF influences directly and positively the CRM Reciprocity and Capture.

CONCLUSION ON THE RELATIONSHIP BETWEEN TECHNOLOGICAL CSF AND CRM COLLABORATIVE ACTIVITY

The above analysis consisted on testing hypothesis H7 and exploring it. As a conclusion, we have confirmed that the Technological CSF influences directly and positively the CRM Collaborative activity. Moreover, the analysis proved that the Technological CSF also influences directly and positively the two dimensions of the CRM Collaborative activity: the CRM Communication Channels, and the CRM Reciprocity and Capture.

2.6 TECHNOLOGICAL CSF AND CRM ANALYTICAL ACTIVITY

This section of the analysis is dedicated for testing if the Technological CS influences directly and positively the CRM Analytical activity (H8).

We have previously (in the correlation matrix conceptual constructs) identified a positive and significant correlation between the two variables. Now we will investigate to see whether the CSF_TECH reliably predicts and influences the CRM Analytical activity.

The simple regression results shown in the table below demonstrate that CSF_TECH can explain 18.1% of the amount of variance in the CRM_Analytical variable. When CSF_TECH increases, CRM_Analytical also increases according to the correlation value

(r=0,426). Not only are those two variables correlated positively, but the regression is statistically significant (F=7,751, p<0.05, and t>2) and proves that CSF_TECH influences directly and positively the CRM_Analytical.

Table 72 Simple Regression of CRM_Analytical on CSF_TECH (testing H8)

CSF_TECH						
CRM_Analytical	0,426**	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,181	7,751	0,009	2,784	1,817
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The regression equation is:

CRM_Analytical = 2,241 + 0,470 CSF_TECH

And as conclusion, we can say that **hypothesis H8 is confirmed**.

2.6.1 TECHNOLOGICAL CSF AND CRM ANALYTICAL DIMENSIONS

After confirming hypothesis H8 we will examine hypotheses H8' and H8" concerning the relationship between the Technological CSF and CRM Analytical activity dimensions (CRM_IA and CRM_IS).

- H8': the Technological CSF influences directly and positively the CRM Information Access.
- -H8": the Technological CSF influences directly and positively the CRM Information Sharing.

2.6.1.1 TECHNOLOGICAL CSF AND CRM INFORMATION ACCESS

The correlation matrix of the detailed constructs shows that Technological CSF and CRM_IA are significantly correlated, r=0,383.

Table 73 Simple Regression of CRM_Analytical on CSF_TECH (investigating H8')

	CSF_TECH					
CRM_IA	0,383*	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,147	6,015	0,019	2,452	2,246
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The table above re-represents the correlation between the two variables. The R^2 value (0,147) indicates that the independent variable (CSF_TECH) can explain 14.7% of the amount of variance in the dependent variable CRM_IA. F=6.015, p=0.019 (<0.05), and t=2.452 (>2) enable us to conclude that the regression is statistically significant and that CSF_TECH influences directly and positively CRM_IA. This result supports H8'.

2.6.1.2 TECHNOLOGICAL CSF AND CRM INFORMATION SHARING

In this analysis, we will investigate to see whether Technological CSF influences directly and positively the CRM Information Sharing.

Table 74 Simple Regression of CRM_IS on CSF_TECH (investigating H8")

	CSF_TECH					
CRM_IS	0,326*	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,106	4,150	0,049	2,037	1,725
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

As identified previously, the two variables CSF_TECH and CRM_IS are positively correlated, with r=0,326. This positive correlation indicates that when CSF_TECH increases, CRM_IS also increases. We can see from the above table that CSF_TECH can explain 10.6% of the amount of variance in the dependent variable CRM_IS. The regression is statistically significant since F=4,150, p<0.05, and t>2. All the above results lead to supporting the H8".

CONCLUSION ON THE RELATIONSHIP BETWEEN TECHNOLOGICAL CSF AND CRM ANALYTICAL ACTIVITY

We have tested the relationship between the technological CSF and the CRM Analytical activity and found that technological critical success factors (End-User System Satisfaction, Consultant Effectiveness, and Vendor Support) influence directly and positively the CRM Analytical activity (refer to appendix B). Moreover, we have concluded that the variable EUS (End-User System Satisfaction) is the best predictor variable for the CRM analytical activity and its two dimensions (CRM Information Sharing, and CRM Information and Access).

2.7 TECHNOLOGICAL CSF AND CRM OPERATIONAL ACTIVITY

We will carry on with testing the influence of the Critical Success Factors constructs on the CRM activity, by examining hypothesis H9. This hypothesis proposes that the Technological CSF influences directly and positively the CRM Operational activity.

Previously, we have identified that a positive and significant correlation does exist between those two variables (CSF_TECH and CRM_O).

Table 75 Simple Regression of CRM_O on CSF_TECH (testing H9)

	CSF_TECH					
CRM_O	0,485**	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,236	10,482	0,003	3,238	1,745
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

We represented the results of the simple-regression analysis of CRM_O on CSF_TECH in the above table. We can see that the independent variable CSF_TECH can explain 23.6% of the amount of variance in the dependent variable CRM_O. according to F=10.482, *p*=0.003 (<0.05), and t=3.238 (>2), we can conclude that the regression is statistically significant, and its equation is:

CRM_O = 2,113 + 0,521 CSF_TECH

The above results come to **confirm hypothesis H9**.

CONCLUSION ON THE RELATIONSHIP BETWEEN TECHNOLOGICAL CSF AND CRM OPERATIONAL ACTIVITY

To recapitulate the above analysis concerning hypothesis H9, we can say that Technological CSF influences directly and positively the CRM Operational activity. Furthermore (refer to appendix B), EUS and Cons dimensions of the Technological construct can independently influence directly and positively the CRM_O while EUS was identified as the best predictor.

2.8 CRM COLLABORATIVE ACTIVITY AND CRM OPERATIONAL ACTIVITY

The CRM Collaborative activity is significantly correlated (r=0.547) with the CRM Operational activity. This indicates that when the CRM Collaborative activity increases the CRM Operational activity also increases according to the correlation's value.

Table 76 Simple Regression Results (testing H10)

	CRM Collaborative					
CRM_O	0.547**	R^2	F	*p*	t	D-W
		0.299	15.343	0.000	3.017	1.777
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The results presented in the above table show that the independent variable CRM Collaborative can explain 29.9% of the amount of variance in the dependent variable CRM_O. Moreover, F-15.343, $p<0.001$, and $t>2$, thus we can conclude that the regression is statistically significant. As a conclusion, we can say the CRM Collaborative activity can reliably predict the CRM Operational activity and consequently **hypothesis H10 is confirmed**. The regression equation is: CRM_O = 1.959 + 0.515 CRM Collaborative

Besides confirming that CRM Collaborative activity can predict the CRM Operational activity, we will investigate to see if both dimensions of the CRM Collaborative activity have

an influence on the CRM Operational activity. So, we will examine H10' and H10" which say:

- H10': the CRM Communication Channels influence directly and positively the CRM Operational activity.
- H10": the CRM Reciprocity and Capture influence directly and positively the CRM Operational activity.

Similar to the investigations before, we will proceed to examine the correlation matrix (correlation matrix detailed constructs) to see if those two dimensions present a significant correlation. As we can notice, the dimension CRM Communication Channels does not display a significant correlation with the CRM Operational activity, as a result H10' is not supported and won't be further examined. The correlation matrix shows that CRM_RC (CRM Reciprocity and Capture) and CRM_O are significantly correlated (r=0.678). The detailed examination of this relationship will be presented next.

2.8.1 CRM RECIPROCITY AND CAPTURE AND CRM OPERATIONAL ACTIVITY

As we have mentioned sooner, in this section we will examine the relationship between the CRM_RC and the CRM_O variables. The outcome of this section will enable us to determine whether the CRM_RC can reliably predict the CRM Operational activity and answer our H10".

Table 77 Simple Regression Results (investigating H10")

	CRM_RC					
CRM_O	0.678**	R^2	F	*p*	t	D-W
		0.460	30.607	0.000	5.532	1.810
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The above table shows that the independent variable CRM_RC can explain 46% of the amount of variance in the dependent variable CRM_O. Furthermore, this table demonstrates that the regression is statistically significant since F=30.607, $p<0.001$, and t>2.

As a result, we can confirm that H10" is supported and that the variable CRM_RC influence directly and positively the variable CRM_O.

CONCLUSION ON THE RELATIONSHIP BETWEEN COLLABORATIVE CRM ACTIVITY AND CRM OPERATIONAL ACTIVITY

The direct and positive influence of CRM Collaborative activity on the CRM Operational activity was confirmed. But this influence is not significant from both dimensions of the CRM Collaborative activity. The CRM Communication channels variable was found not to predict the CRM Operational activity while the CRM Reciprocity and Capture was found to influence directly and positively the CRM Operational activity.

2.9 CRM ANALYTICAL ACTIVITY AND CRM OPERATIONAL ACTIVITY

As we have noticed before, both activities display a significant correlation (r=0.606). We will perform a simple regression of the CRM_O variable on the CRM Analytical activity to show if the CRM Analytical activity can predict the CRM operational activity.

Table 78 Simple Regression Results (testing H11)

	CRM Analytical					
CRM_O	0.606**	R^2	F	*p*	t	D-W
		0.368	20.937	0.000	4.576	2.196
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

As we can see in the table above, as CRM Analytical increases CRM_O also increases and this following the correlation value (r=0.606). The table exhibits also that 36.8% of the amount of variance in the dependent variable CRM_O can be explained be the independent variable CRM Analytical activity. This regression is statistically significant (F=20.937, $p<0.001$, and t>2) and the regression equation is: CRM_O = 1.703 + 0.573 CRM Analytical

As we have mentioned earlier, the outcome of this section enables us **to confirm the hypothesis H11** and to say that CRM Analytical activity influences directly and positively the CRM Operational activity.

According to the research descriptive analyses, we have found that the CRM Analytical activity is divided into two dimensions: CRM Information Access, and CRM Information Sharing. Hereafter, we will examine to see if each dimension influences directly and positively the CRM Operational activity.

- H11': the CRM Information Access influences directly and positively the CRM Operational activity.
- H11": the CRM Information Sharing influences directly and positively the CRM Operational activity.

According to the correlation matrix of the research detailed constructs, we can detect that both activities display a significant correlation with the CRM_O, and therefore we can proceed to further investigate those relationship.

2.9.1 CRM INFORMATION ACCESS AND CRM OPERATIONAL ACTIVITY

The table below summarizes the analysis to enable us to conclude if H11' can be supported and state that CRM_IA (CRM Information Access) can reliably predict the CRM Operational activity.

Table 79 Simple Regression Results (investigating H11')

	CRM_IA					
CRM_O	0.545**	R^2	F	*p*	t	D-W
		0.297	15.198	0.000	3.898	1.962
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

In fact, the results displayed in the above table support H11'. The CRM Information Access variable can explain 29.7% of the amount of variance in the dependent variable CRM_O. Besides, the regression of CRM_O on CRM_IA is statistically significant (F=15.198, $p<0.001$, and $t>2$).

As a conclusion we can say that CRM Information Access influence directly and positively the CRM Operational activity.

2.9.2 CRM INFORMATION SHARING AND CRM OPERATIONAL ACTIVITY

In this section, we will examine the relationship between the CRM Information sharing and the CRM Operational activity (H11").

Table 80 Simple Regression Results (investigating H11")

	CRM_IS					
CRM_O	0.465**	R^2	F	*p*	t	D-W
		0.216	9.926	0.003	3.151	2.414
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The above table shows the correlation value between the two variables (r=0.465). This value indicates that as CRM_IS increases, CRM_O also increases according to the correlation value. R^2 indicates the amount of variance of the dependent variable that can be explained by the independent variable. In our case, the independent variable is CRM_IS and can explain 21.6% of the amount of variance in the dependent variable which is CRM_O. F=9.926, $p<0.05$, and $t>2$, and consequently we can conclude that the regression is statistically significant.

The above results prove that CRM_IS can reliably predict the CRM_O variable, and hence H11" is supported.

Conclusion of the Relationship Between CRM Analytical Activity and CRM Operational Activity

The analysis concerning the relationship between the CRM Analytical activity and the CRM Operational activity has yielded in confirming hypothesis H11. Furthermore, we have found that both dimensions of the CRM Analytical activity (CRM_IA and CRM_IS) can both independently predict the dependent variable CRM_O.

So far, we have tested all hypotheses of the Critical Success Factors of the CRM approach. Hereafter, we will tackle the hypotheses related to the Business Value of the CRM.

2.10 CRM COLLABORATIVE ACTIVITY AND PERCEIVED PERFORMANCE

The first hypothesis to test is H12 which states that the CRM Collaborative activity influences directly and positively the organizational Perceived Performance.

We will not test this hypothesis since the correlation matrix of the conceptual constructs shows no significant correlation between the CRM Collaborative variable (CRM_Collaborative) and the Perceived Performance variable (Perceived Performance).

Consequently, **hypothesis H12 is rejected.** The CRM Collaborative activity did not show a direct and positive influence on the organizational perceived performance.

2.11 CRM ANALYTICAL ACTIVITY AND PERCEIVED PERFORMANCE

In this section, we will investigate the relationship between the CRM Analytical activity and the organizational perceived performance. We will start by testing hypothesis H13. As a reminder, H13 refers to: the CRM Analytical activity influences directly and positively the organizational perceived performance.

Table 81 Simple Regression Results (testing H13)

	CRM Analytical					
Perceived Performance	0.403**	R^2	F	*p*	t	D-W
		0.163	6.991	0.012	2.644	1.920
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The independent variable "CRM Analytical activity" is significantly correlated (r=0.403) with the dependent variable "organizational Perceived Performance". Moreover, CRM Analytical can explain 16.3% of the amount of variance in the Perceived Performance variable. The test of the significance of the regression of the Perceived Performance on the CRM Analytical activity shows that F=6.991, $p<0.05$, and t>2. As a result, the regression is

statistically significant, and we can conclude that the CRM Analytical reliably predicts the organizational Perceived Performance. The regression equation is:

Perceived Performance = 2.426 + 0.310 CRM Analytical

The above results show proof that CRM Analytical influences directly and positively the organizational Perceived Performance, consequently, **H13 is confirmed**.

Having confirmed a relationship between the CRM Analytical activity and the organizational Perceived Performance, we will investigate to see whether the different dimensions of those two variables display statistically significant regressions.

The correlation matrix displayed earlier (Table 62) show that CRM Information and Access and CRM Information Sharing are significantly correlated with the Customer focus Perceived Performance and a non significant correlation with the Organizational focus Perceived Performance. Consequently, in the next parts, we will investigate only the significant correlations since they present a relationship. We will refer to those relationships as follows:

- H13'b: the CRM Information and Access influences directly and positively the Customer focus of the organizational perceived performance.
- H13"b: the CRM Information Sharing influences directly and positively the Customer focus of the organizational perceived performance.

While

- H13'a: would have been presented: the CRM Information Access influences directly and positively the Organizational focus of the organizational perceived performance. But due to the absence of a significant correlation between the CRM Information Access variable (CRM_IA) and the Organizational focus of the organizational perceived performance variable (Perf_Org), this suggestion is not supported and will not be tested.
- H13"a: similar to the above proposition, it would have been presented: the CRM Information Sharing influences directly and positively the Organizational focus of the organizational perceived performance. But due to the absence of a significant

correlation between the CRM Information Access variable (CRM_Is) and the Organizational focus of the organizational perceived performance variable (Perf_Org), this suggestion is not supported and will not be tested.

2.11.1 CRM INFORMATION AND ACCESS AND CUSTOMER FOCUS PERCEIVED PERFORMANCE

The CRM Analytical activity dimension CRM Information and Access displays a significant correlation (r=0.326) with Customer focus dimension of the organizational Perceived Performance. The results below will show if the CRM_IA can reliably predict the Perf_Cus.

Table 82 Simple Regression Results (investigating H13'b)

	CRM_IA					
Perf_Cus	0.326*	R^2	F	*p*	t	D-W
		0.107	4.412	0.043	2.100	2.069
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The results presented in the above table show that 10.7% of the amount of variance in the dependent variable (Perf_Cus) can be explained by the independent variable CRM_IA. The regression of Perf_Cus on CRM_IA is statistically significant since F=4.412, $p<0.05$, and t>2. As a result, we can conclude that CRM_IA can reliably predict the Perf_Cus, and say that the CRM Information and Access influences directly and positively the Customer focus of the organizational Perceived Performance. Consequently, H13'b is supported.

2.11.2 CRM INFORMATION SHARING AND CUSTOMER FOCUS PERCEIVED PERFORMANCE

In this section we will be investigating the relationship between the dimension CRM Information Sharing of the CRM Analytical activity and the Customer focus Perceived Performance

The simple regression results display a positive significant correlation (r=0.445) between the two variables "CRM_IS" and "Perf_Cus". This correlation is significant because of the Pearson's correlation output (Table 62).

Table 83 Simple Regression Results (investigatin H13"b)

	CRM_IS					
Perf_Cus	0.445**	R^2	F	*p*	t	D-W
		0.198	9.113	0.005	3.019	2.054
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The amount of variance in the dependent variable (Perf_Cus) that can be explained by the independent variable (CRM_IS) amounts 19.8%. We can see from the above table that F=9.113, $p<0.05$, and t>2, and therefore we can conclude that the regression is statistically significant. The above result prove that the CRM_IS can reliably predict the Perf_Cus and confirm that CRM_IS influences directly and positively the Perf_Cus. H13"b is supported.

2.12 CRM OPERATIONAL ACTIVITY AND PERCEIVED PERFORMANCE

We have proposed hypothesis H14, which states that the CRM Operational activity influences directly and positively the organizational perceived performance. In this section, we will proceed to test this hypothesis.

Table 84 Simple Regression Results (testing H14)

	CRM_O					
Perceived Performance	0.389**	R^2	F	*p*	t	D-W
		0.151	6.234	0.017	2.497	1.812
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The above table shows that as CRM Operational activity (CRM_O) increases the organizational Perceived Performance also increases, and this is according to the correlation r=0.389. The significant correlation proves that the relationship between the two variables

(CRM_O and Perceived Performance) exists. The simple regression results show that F=6.234, $p<0.05$, and t>2 leading to conclude that the regression is statistically significant. The regression equation is: Perceived Performance = 2.356 + 0.320 CRM_O

The exhibited result proves that CRM Operational activity can reliably predict the Perceived Performance, and consequently we can say that the CRM Operational activity influences directly and positively the Perceived Performance. As a result, **hypothesis H14 is confirmed**.

According to the results in our research descriptive analyses, the organizational perceived performance has proved to have two dimensions: Organizational focus and Customer focus. Next, we will investigate the relationship between the CRM Operational activity variable and each dimension. We will refer to these investigations as follows:

- H14': the CRM Operational activity influences directly and positively the Organizational focus of the organizational perceived performance.
- H14": the CRM Operational activity influences directly and positively the Customer focus of the organizational perceived performance.

By referring to the correlation matrix of our research model (Table 62), we can notice that the CRM_O does not demonstrate a significant correlation. Therefore, we will investigate the relationship between CRM_O and Perf_Org, and we conclude that H14' is not supported. Nevertheless, we will investigate the relationship H14" because according to the correlation matrix, variables CRM_O and Perf_Cus display a significant correlation (r=0.465).

2.12.1 CRM OPERATIONAL ACTIVITY AND CUSTOMER FOCUS PERCEIVED PERFORMANCE

In order to test this relationship (CRM_O and Perf_Cus), we will examine whether CRM Operational activity (CRM_O) reliably predicts the Customer focus Perceived Performance (Perf_Cus).

Table 85 Simple Regression Results (investigating H14")

	CRM_O					
Perf_Cus	0.465**	R^2	F	*p*	t	D-W
		0.217	9.951	0.003	3.154	1.833
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The table above shows the correlation between CRM_O and Perf_Cus, r=0.465. R^2 shows that CRM_O can explain 21.7% of the amount of variance in the dependent variable Perf_Cus. We can also observe that the above table displays F=9.951, $p<0.05$, and $t>2$, and therefore we can conclude that the regression is statistically significant.

CRM_O and Perf_Cus are correlated and the regression is statistically significant, consequently we can say that CRM_O reliably predicts Perf_Cus and influences directly and positively the Perf_Cus. This result brings support to H14".

2.13 ORGANIZATIONAL CSF AND PERCEIVED PERFORMANCE

In this section, we will test the relationship between the Organizational CSF (CSF_ORGA) and the organizational perceived performance (Perceived_Performance). This relationship is referred to as hypothesis H15.

The correlation matrix (Table 61) shows a significant and positive correlation between the two variables.

Table 86 Simple Regression of Perceived Performance on CSF_ORGA (testing H15)

	CSF_ORGA					
Perceived Performance	0,453**	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,205	9,274	0,004	3,045	2,138
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The above table shows that CSF_ORGA explains 20.5% of the amount of variance in the dependent variable Perceived_Performance. Furthermore, the regression is statistically significant with F=9,274, p<0.05, and t>2. As a consequence, we can conclude that **hypothesis H15 is confirmed**. The regression equation is:

Perceived_Performance = 2,336 + 0,256 CSF_ORGA

We will now proceed to testing the descents hypothesis from H15. One hypothesis concerns the relationship between the Organizational CSF and the Organizational focus of the Perceived Performance. And the second hypothesis concerns the Customer focus of the Perceived Performance.

- H15': the Organizational CSF influences directly and positively the Organizational focus Perceived Performance.
- H15": the Organizational CSF influences directly and positively the Customer focus Perceived Performance.

2.13.1 THE ORGANIZATIONAL CSF AND THE ORGANIZATIONAL FOCUS PERCEIVED PERFORMANCE

The correlation matrix Table 62 shows that variables CSF_ORGA and Perf_Org display a significant and positive correlation.

Table 87 Simple Regression of Perf_Org on CSF_ORGA (investigating H15')

	CSF_ORGA					
Perf_Org	0,430**	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,185	8,154	0,007	2,856	2,035
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The above table shows the significant correlation between the independent variable (CSF_ORGA) and the dependent variable (Perf_Org), with r=0,430. The above results show that CSF_ORGA can explain 18.5% of the amount of variance in the dependent variable

Perf_Org. We can also note that F=8,154, p<0.05, and t>2 and consequently we can conclude that the regression is significant. As a result, CSF_ORGA influences directly and positively the Organizational focus of the Perceived Performance, and H15' is supported.

2.13.2 THE ORGANIZATIONAL CSF AND THE CUSTOMER FOCUS PERCEIVED PERFORMANCE

We have previously identified a positive correlation between the Organizational CSF (CSF_ORGA) variable and the Customer focus variable (Perf_Cus). This correlation is displayed in Table 62. Now, we will examine if CSF_ORGA can reliably predict Perf_Cus (H15").

Table 88 Simple Regression of Perf_Cus on CSF_ORGA (investigating H15")

	CSF_ORGA					
Perf_Cus	0,416**	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,173	7,512	0,009	2,741	2,157
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

As we can see from the table above, Perf_Cus increases whenever CSF_ORGA increases, and this is according to the correlation value r=0,416. The independent variable CSF_ORGA can explain 17.3% of the amount of variance in the dependent variable Perf_Cus. This simple regression is statistically significant because F=7,512, p<0.05, and t>2. Therefore, we can say that H15" is supported and that CSF_ORGA influences directly and positively the Customer focus of the Perceived Performance.

2.14 ORIENTATION CSF AND PERCEIVED PERFORMANCE

In this section, we will examine the relationship between the Orientation CSF variable (CSF_ORIEN) and the organizational perceived performance variable (Perceived_Performance). This relationship was defined by the research hypothesis H16.

Table 89 Simple Regression Perceived Performance on CSF_ORIEN (testing H16)

	CSF_ORIEN					
Perceived Performance	0,417**	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,174	7,567	0.009	2,751	1,887
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The above table shows that CSF_ORIEN and Perceived_Performance are significantly and positively correlated (r=0,417). We can see also that CSF_ORIEN can explain 17.4% of the amount of variance in the dependent variable Perceived_Performance. F=7,567, $p<0.05$ and t=2,751 (>2) and consequently we can conclude that the regression is statistically significant, and its equation is:

Perceived_Performance = 2,172 + 0,358 CSF_ORIEN

The above results **confirm the hypothesis H16**.

Now, we will investigate the two descents sub-hypotheses from hypothesis H16.

- H16': the Orientation CSF influences directly and positively the Organizational focus Perceived Performance.
- H16": the Orientation CSF influences directly and positively the Customer focus Perceived Performance.

2.14.1 ORIENTATION CSF AND PERCEIVED PERFORMANCE DIMENSIONS

The correlation matrix (Table 62) shows that the CSF_ORIEN variable and the Perf_Org variable does not display a significant correlation, while CSF_ORIEN demonstrates a significant positive correlation with the Perf_Cus variable. Consequently, H16' will not be investigated and we can conclude that the Orientation CSF does not influence directly and positively the Organizational focus perceived performance.

The two variables CSF_ORIEN and Perf_Cus show a significant correlation as we can observe in Table 62.

Table 90 Simple Regression Perf_Cus in CSF_ORIEN (investigating H16")

	CSF_ORIEN					
Perf_Cus	0,502**	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,252	12,498	0,001	3,535	2,075
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The Table 90 shows that 25.2% of the amount of variance in the dependent variable Perf_Cus can be explained by the independent variable CSF_ORIEN. We can notice that the regression is statistically significant because F=12,498, $p<0.05$, and t>2. As a result, we can say that the independent variable CSF_ORIEN influences directly and positively the dependent variable Customer focus Perceived Performance (Perf_Cus). Thus, H16" is supported.

2.15 TECHNOLOGICAL CSF AND PERCEIVED PERFORMANCE

The technological CSF variable (CSF_TECH) and the perceived performance variable (Perceived_Performance) display a significant and positive correlation according to the correlation matrix of the conceptual constructs (Table 61). We will investigate this relationship to conclude if the Technological CSF influences directly and positively the organizational perceived performance.

Table 91 Simple Regression Perceived_Performance on CSF_TECH (testing H17)

	CSF_TECH					
Perceived Performance	0,417*	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,174	7,362	0,010	2,713	1,941
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The above table shows a summary of the simple-regression analysis of Perceived_Performance on CSF_TECH. The value 0,417 indicates that as CSF_TECH increases Perceived_Performance also increases and this is the positive correlation that we

can locate in the correlation matrix (Table 61). The R^2 value shows the amount of variance in the dependent variable (Perceived_Performance) that can be explained by the independent variable (CSF_TECH). In our case, CSF_TECH accounts for 17.4% of the variance in Perceived_Performance. The remaining values (F=7,362, *p*=0.010, t=2,713, and D-W=1,941) concern the significance of the regression. As we can see, $p<0.05$, $t>2$, and $1.5<D\text{-}W<2.5$, and therefore we can conclude that the regression is statistically significant, and its equation is:

Perceived_Performance = 2,359 + 0,360 CSF_TECH

The above results enable us to confirm our **hypothesis H17**.

Next, we will examine the two sub-hypotheses related to the Technological CSF and the Perceived Performance:

- H17': the Technological CSF influences directly and positively the Organizational focus Perceived Performance
- H17": the Technological CSF influences directly and positively the Customer focus Perceived Performance

2.15.1 TECHNOLOGICAL CSF AND PERCEIVED PERFORMANCE DIMENSIONS

In order to examine those two hypotheses, first we will look to see if we can identify a correlation between the variables. Table 62 shows that variables CSF_TECH and Perf_Org do not display a significant correlation, therefore H17' is not supported. On the other hand, variables CSF_TECH and Perf_Cus display a significant and positive correlation, and consequently we will examine this relationship to see if H17" is supported.

Table 92 Simple Regression Perf_Cus on CSF_TECH (investigating H17")

	CSF_TECH					
Perf_Cus	0,494**	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,244	11,314	0,002	3,364	2,067
**. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).						

The results presented in Table 92 show that CSF_TECH can explain 24.4% of the amount of variance in the dependent variable Perf_Cus. We can also see the positive correlation value (r=0,494) which indicates that when CSF_TECH increases, Perf_Cus also increases. The results enable us to conclude that the regression is statistically significant since F=11,314, $p<0.05$, and t>2. As a result, we can say that H17" is supported and the Technological CSF influences directly and positively the Customer focus Perceived Performance.

2.16 HYPOTHESES RESULTS

In this section, we will summarize all findings of the hypotheses testing sections, and we will outline the conceptual research model with all hypotheses.

2.16.1 CRM APPROACH CRITICAL SUCCESS FACTORS

At this point of the analysis, we will present a summary concerning the results we have found and outline the first part of our conceptual research model. the first part of our research model treats the critical success factors for the customer relationship management approach.

The hypotheses that were tested in the first part are presented in the table below as well as their descents and their appropriate results.

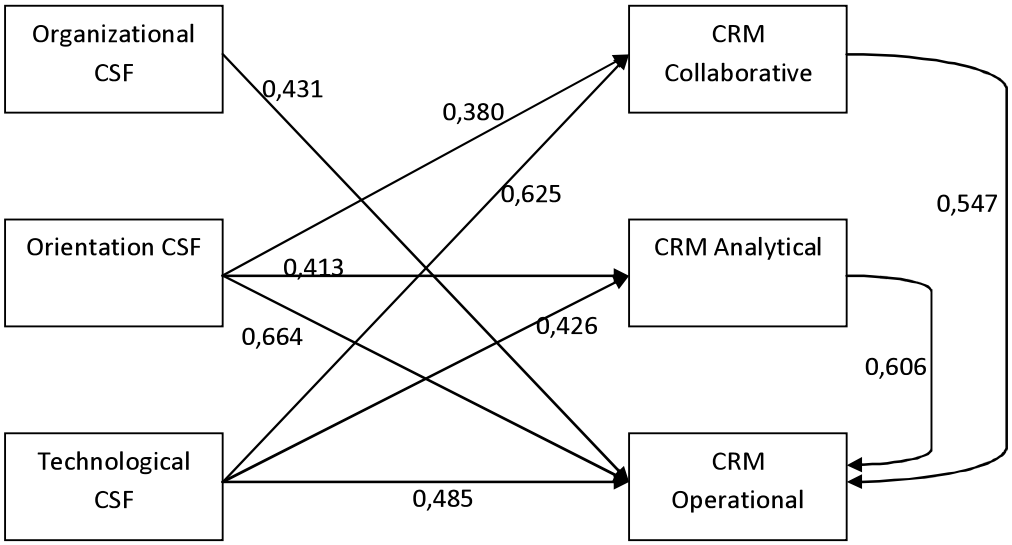
Table 93 Critical Success Factors of the CRM Hypotheses and their results

	Independent variable	Relationship	Dependent Variable	Result
H1	Organizational CSF	**Influence directly and positively**	CRM Collaborative	Rejected
H2	Organizational CSF		CRM Analytical	Rejected
H3	Organizational CSF		CRM Operational	Confirmed
H4	Orientation CSF		CRM Collaborative	Confirmed
H4'	Orientation CSF		CRM_CC	Rejected
H4"	Orientation CSF		CRM_RC	Confirmed
H5	Orientation CSF		CRM Analytical	Confirmed

H5'	Orientation CSF		CRM_IS	Rejected
H5"	Orientation CSF		CRM_IA	Confirmed
H6	Orientation CSF		CRM_O	Confirmed
H7	Technological CSF		CRM Collaborative	Confirmed
H7'	Technological CSF		CRM_CC	Confirmed
H7"	Technological CSF		CRM_RC	Confirmed
H8	Technological CSF		CRM Analytical	Confirmed
H8'	Technological CSF		CRM_IA	Confirmed
H8"	Technological CSF		CRM_IS	Confirmed
H9	Technological CSF		CRM_O	Confirmed
H10	CRM Collaborative		CRM_O	Confirmed
H10'	CRM_CC		CRM_O	Rejected
H10"	CRM_RC		CRM_O	Confirmed
H11	CRM Analytical		CRM_O	Confirmed
H11'	CRM_IA		CRM_O	Confirmed
H11"	CRM_IS		CRM_O	Confirmed

To further understand the results, we will outline the CRM Critical Success Factors of the research model.

Figure 21 CRM Critical Success Factors Research Model Results



2.16.2 CRM APPROACH IMPACTS ON PERCEIVED PERFORMANCE

At this point of the analysis, we will summarize the results of the hypotheses related to the business value of the CRM approach. First, we will present a table in which all related hypotheses the part, their related sub-hypotheses and their results. in a second time, we will outline those hypotheses on the conceptual research model part reserved for describing the impact of the CRM approach on the Organizational Performance.

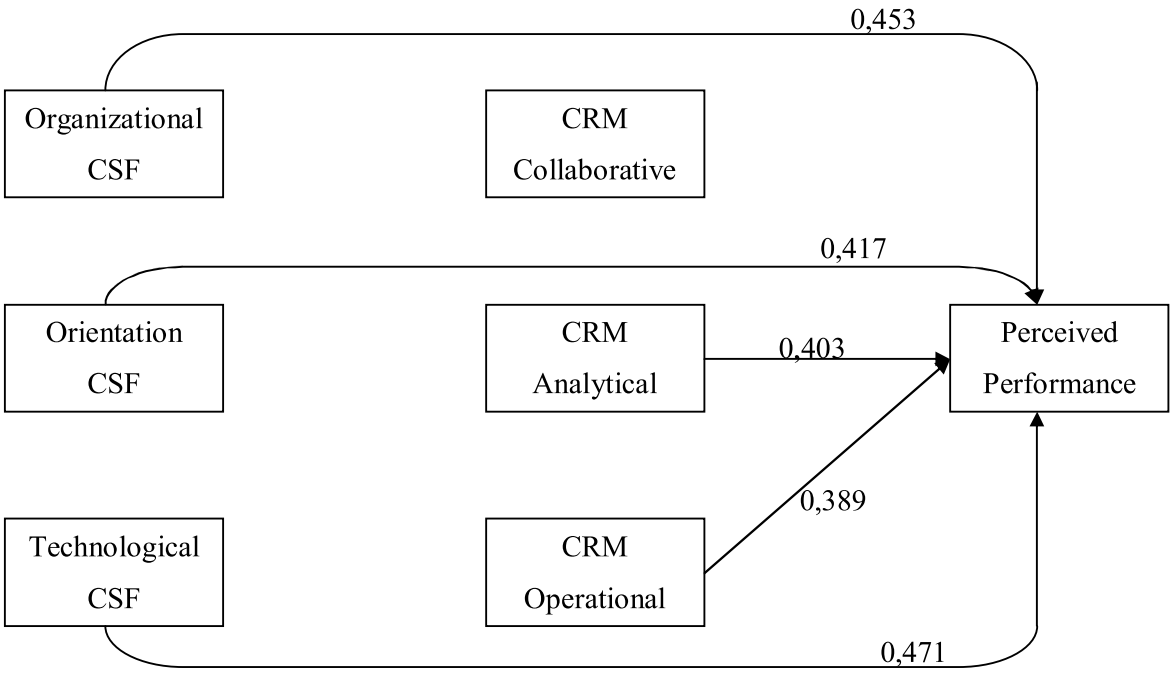
Table 94 CRM Approach Business Value and its Hypotheses and their results

	Independent Variable	Relationship	Dependent Variable	Result
H12	CRM Collaborative	Influences directly and positively	Perceived Performance	Rejected
H13	CRM Analytical		Perceived Performance	Confirmed
H13'a	CRM_IA		Perf_Org	Rejected
H13"b	CRM_IA		Perf_Cus	Confirmed
H13"a	CRM_IS		Perf_Org	Rejected
H13"b	CRM_IS		Perf_Cus	Confirmed

H14	CRM Operational		Perceived Performance	Confirmed
H14'	CRM_O		Perf_Org	Rejected
H14"	CRM_O		Perf_Cus	Confirmed
H15	Organizational CSF		Perceived Performance	Confirmed
H15'	Organizational CSF		Perf_Org	Confirmed
H15"	Organizational CSF		Perf_Cus	Rejected
H16	Orientation CSF		Perceived Performance	Confirmed
H16'	Orientation CSF		Perf_Org	Rejected
H16"	Orientation CSF		Perf_Cus	Confirmed
H17	Technological CSF		Perceived Performance	Confirmed
H17'	Technological CSF		Perf_Org	Rejected
H17"	Technological CSF		Perf_Cus	Confirmed

Hereafter, we will present the results concerning the conceptual research model linking the CRM activities to the Perceived Performance.

Figure 22 CRM Approach Impact on Perceived Performance

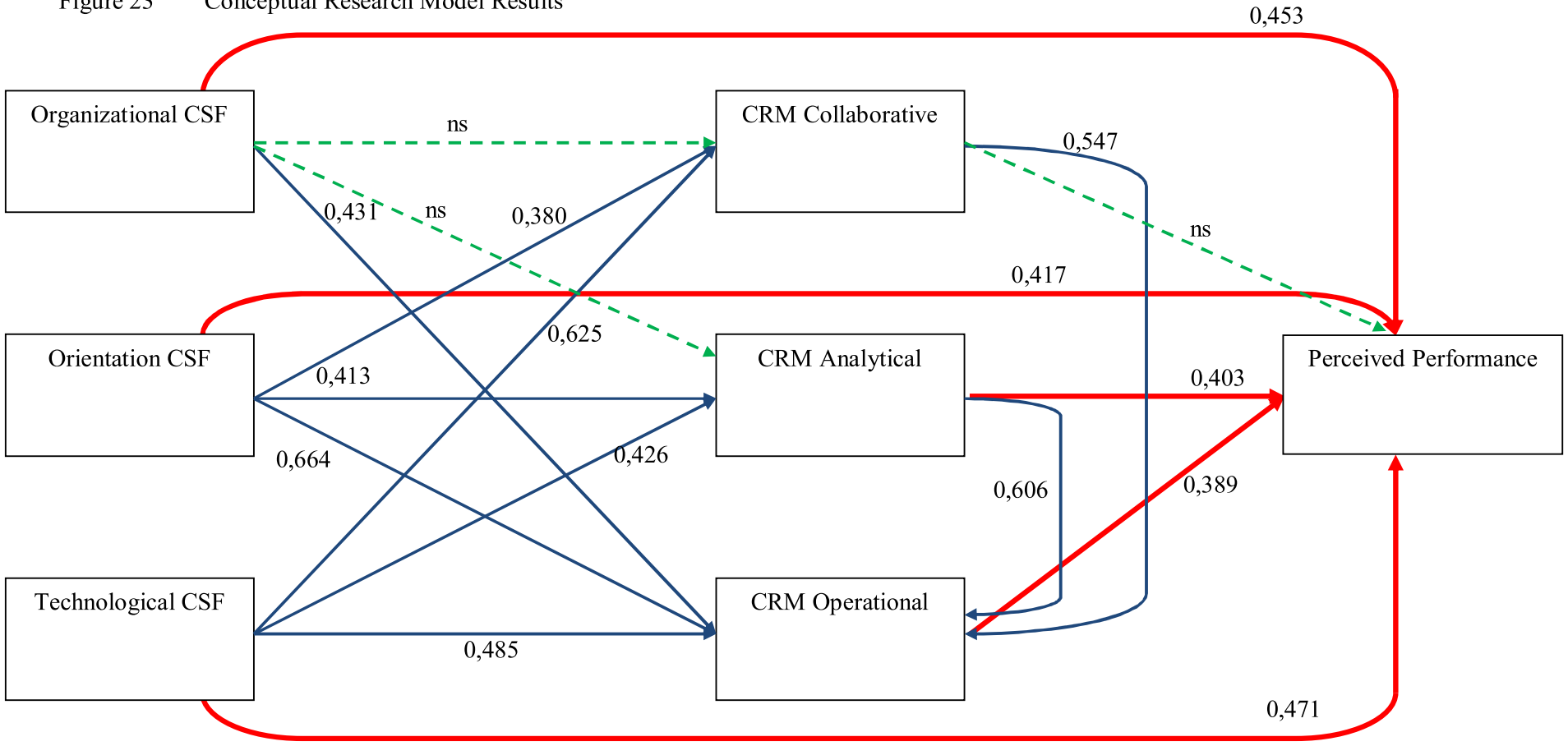


As we can notice, the CRM Collaborative activity does not show any direct influence on the Perceived Performance.

The Figure 23 shows the entire research model with all hypotheses. The dashed arrows represent the hypotheses that were rejected, and that the relationship between the constructs is not significant. Each relationship between the research construct is commented with the correlation value between the constructs.

2.16.3 CONCEPTUAL RESEARCH MODEL RESULTS

Figure 23 Conceptual Research Model Results[10]



[10] Validated CRM Approach Impact Hypotheses — Validated CRM Critical Factors Hypotheses — Hypotheses Not Supported

The section 5 which investigated the research model and the hypotheses showed the Business Value of the CRM Approach in the Lebanese 5 star Hotels. The analyses proved that the three categories of critical success factors (Organizational, Orientation, and Technological) are essentials to the CRM Approach. Furthermore, the three activities of the CRM showed to have a positive and direct effect in succeeding a CRM Approach, and that the CRM Approach is not summarized by a single activity. The analyses showed the impact of the CRM Approach on the organizational perceived performance. It showed that apart from the CRM Collaborative activity, all remaining factors of the CRM Approach (Organizational CSF, Orientation CSF, Technological CSF, CRM Analytical, and CRM Operational) proved to have a direct and positive influence on the organizational perceived performance.

The results and findings of the research will be discussed in the following section as well as the research contributions and limitations. We will also enumerate some of the directions for further research and briefly sum up this research.

SECTION VI FINDINGS, DISCUSSIONS, IMPLICATIONS AND CONCLUSIONS

The primary objectives of the study were to determine the critical success factors concerning the Customer Relationship Management (CRM) Approach, and the business value of the CRM approach in the Hotel industry. As stated in the introductory section, the objectives of the research were to conceptualize the Business Value of the CRM, to investigate organizational, orientation, and technological context variables that influence the CRM activity, and to examine the organizational impact of CRM activity and its prerequisites.

The research objectives can then be stated as follows:

- To delineate the Customer Relationship Management approach
- To develop a conceptual framework that defines the CRM Business Value
- To delineate the CRM prerequisites
- To develop a research model based on the conceptual model and the CRM essentials and to empirically test the research model and hypotheses
- To explore the CRM Business Value

In order to answer those issues, the research was based upon the Information Systems and Marketing literatures from which a set of variables was selected and a conceptual research model was derived. Primarily, the research model is based upon the Information Systems Business Value literature and then was refined according to the CRM literature in both the IS and Marketing literatures. The variables were accommodated in consistence with the CRM literature and the hotel industry requirements. The exploratory phase was conducted in the 5 star hotels of Lebanon. A survey was sent to key CRM actors in each hotel. The results of the survey were analyzed using the SPSS 16.0 software.

The purpose of this chapter is to discuss the findings and the results and to draw implications and conclusions from the research.

The main purpose of this research was to develop and test a CRM Business Value model in the hotel sector in order to identify the impact of the CRM approach and to determine its critical success factors.

The study proposed to extend previous research in the information systems and marketing domains by investigating the critical success factors of the CRM, and the resulting impact of the Customer Relationship Management approach on the organizational performance.

1 FINDINGS AND DISCUSSIONS

During the era where information technology is transforming hotels' sales, marketing, and customer service activities, one must look behind the technological standards to remain competitive. The technology is accessible for each 5 stars hotel, but the special factors behind this technology which permit to attain the expected business value remain hidden.

We can state that three key findings summarize the research results. The first is that organizational, orientation, and technological critical success factors influence directly and positively the different activities of the CRM approach.

The second is that while Collaborative and Analytical activities are essential for the CRM approach, they are critical for and influence directly and positively the Operational CRM activity.

The third finding is that the extent of perceived organizational performance concerning the CRM approach is predicted not only by the CRM activities. But, the previously mentioned factors are also directly and positively linked to the perceived performance.

The discussion concerning the research results will be divided into 5 parts. The first three parts will be concentrated on the results concerning the three categories of critical success factors (CSF), the 4th part discusses the CRM Activity results and findings, while the last part of the discussion considers the perceived performance construct results.

1.1 ORGANIZATIONAL CRITICAL SUCCESS FACTORS

The results (Table 95) of this study indicate that the organizational factors (Organizational System and Top Management Support) are critical to the Customer Relationship Management Approach and do have a positive impact on the organizational perceived performance.

TABLE 95 ORGANIZATIONAL CSF FINDINGS

	CRM Collaborative		CRM Analytical		CRM Operational	Perceived Performance	
Organizational CSF					X	X	
	CRM_CC	CRM_RC	CRM_IA	CRM_IS	CRM_O	Perf_Org	Perf_Cus
Organizational CSF					X[11]	X	X
Top Management Support					X	X	X
Organizational System							

Concerning the critical success factors for the CRM activity, the organizational factors did not exhibit a direct and positive influence on the Collaborative activity (H1) nor on the Analytical activity (H2). However, the research results have provided evidence that the organizational factors (Organizational System and Top Management Support) influence directly and positively the CRM Operational activity (H3). This result, which states that CRM Organizational Critical Success Factors influence the CRM Operational activity, is analogous with Karimi et al.'s (2001) results in proving that IT Management Practices have the potential to impact operations functions in firms in order to increase customer service. Moreover, the results prove that Organizational Factors influence positively and directly the perceived performance (H15) in its two focuses: the internal and the Customer focus.

These results indicate that Organizational CSF, taken as a whole, is a critical success factor for the CRM success.

[11] In the rest of the research, X represents the existence of a correlation between two constructs

In depicting the results of the research considering the Organizational CSF, we can notice that the respondents did not view the Organizational System (OS) as important as the Top Management Support (TMS) for the success of the Customer Relationship Management approach. As a matter of fact, 64.1% of the respondents agree that the Organizational System is essential for the CRM approach while 81.6% of them indicate the importance of the Top Management Support. Furthermore, the multiple regression analyses represented in appendix B confirm the above statement about the TMS importance. This analysis shows that the TMS is a better predictor, than the OS, for both the CRM Operational activity as well as the Perceived Performance. This can be explained by the fact that the Organizational System can provide a tendency that motivates behaviors and actions but needs a support and an engagement to translate it into performance.

Concerning the influence of the organizational system on the perceived performance of the organization, the results show a direct and positive association between those two constructs. An important finding is that, among the critical success factors considered for the research (Organizational, Orientation, and Technological), only the organizational critical success factors influence directly and positively the Organizational focus of the perceived performance. The explanation of this result is that the Organizational focus perceived performance is the organization's satisfaction degree towards the CRM Approach and regards the management satisfaction with the CRM Approach. Thus, it measures the organizational perceived performance of their CRM Approach organization.

The implication of the organizational critical success factors analysis results is that, even though the hotel is organized towards a customer-centric organization (organizational system), the success of the CRM Approach needs also the top management support to go along with the system in order to realize the business value of the CRM approach.

As a result, the research comes to underline again the importance of the organizational factors, notably the Top Management Support, for the CRM Approach and its success (e.g., Mendoza et al., 2007; Roberts et al., 2005).

1.2 ORIENTATION CRITICAL SUCCESS FACTORS

The results of the research clearly indicate that the Orientation Critical Success Factors are indispensable for a successful CRM approach and essential for the perceived performance of such an approach. The findings of the research are summarized in Table 96 below.

TABLE 96 ORIENTATION CSF FINDINGS

	CRM Collaborative		CRM Analytical		CRM Operational	Perceived Performance	
Orientation CSF	X		X		X	X	
	CRM_CC	CRM_RC	CRM_IA	CRM_IS	CRM_O	Perf_Org	Perf_Cus
Orientation CSF		X		X	X		X
Customer Orientation		X			X	X	X
Competitor Orientation					X		
Inter-Functional Coordination		X	X	X	X		X

In fact all hypotheses (H4, H5, and H6) linking the Orientation CSF to the different CRM activities were confirmed yielding to the importance of the orientation factors (Customer orientation, Competitor orientation, and Inter-Functional coordination) to CRM approach activity. The results also demonstrate that the Orientation CSF directly and positively influences the organizational perceived performance (H16). This result supports the view that organizations oriented towards the market (Narver and Slater, 1990) are more likely to practice a CRM Approach resulting in a success.

The results of this research suggest that the Orientation factors influence the CRM Collaborative activity in its Reciprocity and Capture but not in its Communication Channels construct. As well, the orientation influences the information sharing of the CRM Analytical activity but not the Information Access construct. The explanation of this finding is that both constructs, not influenced by the orientation factors, are technologically based construct. The Communication Channels and the Information Access constructs are mainly linked to the technological façade of the Collaborative and Analytical activity of the CRM, and therefore

the orientation of the hotel will not have a direct and positive influence upon those technologically based functions.

Another finding concerning the Orientation factors analysis is that Orientation Critical Success Factors influence directly and positively the perceived organizational performance. However, the orientation factors do only correlate with the Customer focus Perceived Performance, and not with the Organizational focus Perceived Performance. An explanation for this result is that the orientation factors, unlike the organizational factors, cover the aspect of the culture that creates the necessary behaviors for the creation of superior value for customers (Narver and Slater, 1990). Consequently, the orientation will concentrates more on the customers' level of satisfaction (Customer focus) leaving the Organizational focus, which refers to the degree of customer satisfaction, to the organization's management system factors.

We will next exhibit the above findings into more details in order to differentiate between the different Orientation Critical Success Factors.

The customer orientation is the factor that proved to be the most important for the CRM Collaborative activity and for the Perceived Performance as well. This result is coherent with previous research results (e.g., Behr, 2001; Roberts et al., 2005; Zablah et al., 2004). This result was expected since the hotels are primarily organized around the customer.

- The implication is that the more the hotel is customer oriented, the more its collaborative activity is effective and efficient. In fact, the collaborative activity is based on the process during which the hotel interacts with customers in order to share information and to acquire new one. And consequently, the more relational the hotel gets with the customer, the more information it gets. The hotel enables the customers to have interactive communication by means of varied channels which is likely to build relationship based on trust (Mohr et al., 1996). When the customer trusts the hotel, this customer is confident about the reliability, durability, and integrity of the hotel. This trust will lead to cooperation, commitment, relationship duration and quality of the relationship (Peppers and Rogers, 2004) and hence will facilitate the CRM Collaborative activity to take place.

- Another result concerning the customer orientation of the hotel is its positive and direct influence on the perceived performance. In fact, the customer orientation of the hotel leads to a better knowledge of and on the customer resulting in better products and services. The customer orientation of the hotel (showing commitment to customers, creating services that offer value for the customers, understanding customer needs, having customer satisfaction a major objective, measuring customer satisfaction, and providing follow-up services) makes the customer feel as an integral part of the hotel (Peppers and Rogers, 2004). Consequently, this customer will more likely believe that the hotel's actions are in his/her best interest leading to a better satisfaction.

The inter-functional coordination factor is highly correlated with all CRM activities (Collaborative, Analytical, and Operational) and with the perceived performance. However, it is the best predictor of both the CRM Analytical activity and the CRM Operational activity. In fact, King and Burgess (2008) showed that inter-functional coordination leads to the CRM Success in a general way, while Goodhue et al. (2002) proved that the inter-functional coordination in the hotel is essential for the CRM success in the hotel.

- In fact, the inter-functional coordination in the hotel can be categorized into two sections: the first section is that the various departments in the hotel share resources (data and information) with each other, a critical and basic task for the CRM Analytical activity. And the second section is that the various departments work together in offering value to customer, a core activity for the CRM Operational activity.

The Competitor Orientation factor shows a high correlation with the CRM Operational activity. Although neglected in the CRM literature, the research results show that it can influence directly and positively the CRM activity especially the CRM Operational activity.

The conclusion we can draw upon the results concerning the Orientation Critical Success Factors comes to support other research concerning the orientation especially the customer orientation importance for the CRM success (King and Burgess, 2008; Roberts et al., 2005; Wilson et al., 2002; Zablah et al., 2004).

However, this research proves that not only the Customer Orientation is essential for the CRM success in the hotel, but other orientation factors are critical for this success particularly the Inter-Functional Coordination. This result joins the exploratory phase where the interviewed managers have highlighted the role of the inter-functional coordination in succeeding a CRM Approach. The various departments in the hotel have to establish the willingness to work together in order to improve the Customer Relationship Management Approach and the Perceived Organizational Performance.

1.3 TECHNOLOGICAL CRITICAL SUCCESS FACTORS

The CRM Approach, although not a technological tool, is generally considered being heavily based on technological factors for its success. The technological critical success factors (End-User System Satisfaction, Information Systems Department Effectiveness, and Information Systems Department Support) refer to the satisfaction of the users from the CRM tools and CRM support.

The hypotheses describing the influence of the technological factors on the CRM activity (H7, H8, and H9) and on the perceived performance (H17) were all confirmed. The results indicate that the technological factors are critical success factors for the CRM Approach in the hotel and do have a direct and positive influence on the organizational perceived performance vis-à-vis the CRM Approach. The results concerning the technological critical success factors are presented in the table below.

TABLE 97 TECHNOLOGICAL CSF FINDINGS

	CRM Collaborative		CRM Analytical		CRM Operational	Perceived Performance	
Technological CSF	X		X		X	X	
	CRM_CC	CRM_RC	CRM_IA	CRM_IS	CRM_O	Perf_Org	Perf_Cus
Technological CSF	X	X	X	X	X		X
End-User System Satisfaction	X	X	X	X	X	X	X
Information Systems Department Effectiveness	X				X		X
Information	X	X					

Systems Department Support							

This effect of technological CSF reveals that with better system selection, a continual support, and enhanced user-satisfaction, the hotel is capable of enhancing its customer relationship management.

The technological critical success factors studied in this research influence directly and positively every aspect of the CRM approach activity. Those factors are highly correlated with the Communication Channels, the Reciprocity and Capture, the Information Access, the Information Sharing, and the CRM Operational activity. This finding comes to underline the importance of the End-User System Satisfaction in the CRM success, but also to add that the consultancy role and the support role of the Information Systems Department is crucial in succeeding in the Customer Relationship Management approach.

The findings show that the End-User System Satisfaction is the best predictor for the perceived performance and all aspects of the CRM activity (Communication Channels, Reciprocity and Capture, Information Access, Information Sharing, CRM Operational). This finding comes to support previous findings in the IS research towards the importance of end-user system satisfaction in the information systems success.

However, an important finding to be underlined is the critical role of the information systems department. The consultancy role of the IS Department in performing information requirements analysis and in selecting the most suitable solution among the different available solutions is essential to the CRM Approach especially for the Communication Channels and the Operational activity of the CRM. In enabling the customer to have interactive communication with the hotel by means of different channels, the hotel tends to more satisfy the customer by showing more convenience. The second critical role of the information systems department is the support role. It is the adequacy and the quality of the support and of the training provided that impact the CRM activity.

Those findings are coherent with previous findings concerning the success of Customer Relationship Management. Alt and Puschmann (2006) and Behr (2001) have mentioned the important role of consultancy in selecting the appropriate tool for the CRM approach. While

Bose (2002); Colgate and Danaher (2000) and Roberts et al. (2005) have highlighted the importance of support to the CRM tools users.

The technological critical success factors enable the hotel to better manage the customer relationships. Those factors lead to enhancing the interaction with the customer which leads to a better analytical activity and higher level of customization of products and services.

1.4 CRM ACTIVITY

In our research, we have defined the CRM approach activity into three essential activities. According to Fayerman (2002), those are the widely accepted CRM activities in the literature. They are based on specific technological tools which enable the automation of specific functions. In general, we have the front office solutions or customer interaction solutions dedicated to the automation of functions as reviewed in section 1 in the CRM Essential part. Those tools permit the automation of sales, marketing and customer service functions. The other type of technological tools that the CRM approach relies on is back office solutions which mainly help in data integration and analysis.

The research results (Table 98) concerning the CRM Activity show that CRM Collaborative activity and the CRM Analytical activity are both critical to the success of the Operational activity (H10 and H11). The implication is that hotels maintain a relational activity with customers in order to feed the database. This database is updated on a continuous way and data is analyzed in order to create and develop customer profiles and customer preferences. Those results are accessed and shared across the entire organization using the automation tools.

TABLE 98 CRM ACTIVITY FINDINGS

	CRM Operational	Perceived Performance	Perf_Org	Perf_Cus
CRM Collaborative	**X**			
CRM_CC				
CRM_RC	X			
CRM Analytical	**X**	**X**		
CRM_IA	X			X
CRM_IS	X			X
CRM Operational		**X**		X

Those results translate previous CRM thoughts about the role of collaborative and analytical activities in favor of the CRM operational activity. The collaborative activity enables the hotel to stay connected with customers, while the relational activity enables the hotel to capture and share information and is a basis for future interactions in the context of the CRM activity (Peppers and Rogers, 1997).

In depicting the CRM Collaborative activity, we can notice that the CRM Communication Channels are not linked to the CRM Operational activity and do not assist to perceived performance. The communication channels are just enablers for the CRM Reciprocity and Capture activity, the main function in the CRM Collaborative activity. This function (Reciprocity and Capture CRM_RC) does influence directly and positively the CRM Operational activity. This link is evident, since the Reciprocity and Capture consist in getting relational with the customer in order to share and collect information, a basic for the CRM Operational activity. It is by communicating that the hotel manages to propose value to the customer.

The analytical activity of the CRM approach comes to integrate captured data from the different communication channels in order to ensure the development of one detailed history concerning each customer. This detailed history is also easily reached by all relevant employees allowing them an improved customer relationship management. This analytical activity principle ensures a superior management of the information thus enhancing internal and external communications (Favier and Trahand, 2007). A detailed glance at the CRM Analytical activity permits us to mention that the CRM Information Access (CRM_IA) and CRM Information Sharing (CRM_IS) influence directly and positively the hotel CRM Operational activity. According to King and Burgess (2008), sharing the data is critical to the success of a CRM Approach as well as the access to the up-to-date customer information.

In their CRM Process conceptualization, Peppers and Rogers (2004) proposed four implementation tasks for creating and managing customer relationships; the famous IDIC[12] implementation process. They mention that the last task, “Customize treatment”, is most

[12] The IDIC implementation process refers to four processes: Identify customers, Differentiate customers, Interact with customers, and Customize treatment (Peppers and Rogers, 2004, p.68-69).

likely the final process of the IDIC framework. This process is where the organization takes action towards customers by adapting its offer to satisfy the customer's needs. In our framework, this action is similar to the CRM Operational activity, since they both use the collected and analyzed data to develop and offer customer-specific products and services.

The above results concerning the CRM activity adds to the previously findings of the research the importance of the CRM Collaborative and CRM Analytical activity in succeeding the CRM Approach. Although all three activities are essentials for the CRM Approach success, the two activities mentioned before are fundamentals for the CRM Operational activity. This finding is consistent with Mendoza et al.'s (2007). The authors suggest that data analysis and interaction means are essential in succeeding the customer relationship management and that the customer information management is highly important in the CRM Approach. Bose (2002) validate that data integrity and integration with operational systems is critical to the CRM Approach.

The other result of the CRM Activity analysis consisted of examining the relations between the different CRM Approach activities and the Organizational Perceived Performance which revealed a positive and direct relationship and influence.

The three CRM activities (Collaborative, Analytical, and Operational) are crucial for the CRM Business Value and do influence directly and positively the perceived organizational performance (H12, H13, and H14). This result is coherent with all CRM research which showed that CRM lead to organizational performance particularly in the hotel industry (Olsen and Connolly, 2000; Sigala and Connolly, 2004; Siguaw and Enz, 1999).

The CRM Collaborative activity enables the customers to undertake a relational communication with the hotel. Thus, by providing interactive communication with customers, the hotel provides consumption-related fulfillment and enhances the customer satisfaction (Oliver, 1996). The collaborative CRM enables the hotel to maintain a regular contact with the customers and therefore capture information on an ongoing basis.

Likewise, the CRM Analytical activity provides key customer contact employees with all essential information boosting the learning process concerning the customer and its needs, thereby improving customer satisfaction and loyalty. This activity is intended to establish a single repository of the data gathered by the Collaborative CRM and to perform data mining

tasks. This activity allows the hotel to sort and give meaning to all information regarding customers and to share this knowledge to all relevant employees in order to better manage customer relationships. In presenting the data in a high quality and less quantity, the CRM Analytical activity proves to enhance the CRM Approach and leads to a successful customer relationships management (Ryals and Payne, 2001; Zablah et al., 2004).

The CRM Operational activity also boosts the customer relationship learning (Selnes and Sallis, 2003) and provides customer with responses to their needs and thus enhances customer satisfaction and loyalty. The Operational CRM enables the hotel to develop customer profiles, identify appropriate channels to offer the customized offers and services. It also helps the hotel in assessing the customer lifetime value.

1.5 PERCEIVED PERFORMANCE

The research results, as shown in the above discussions, provide evidence to the positive effect of the CRM Approach on the organizational performance.

TABLE 99 ORGANIZATIONAL PERCEIVED PERFORMANCE FINDINGS

CRM Approach Constructs	Perceived Performance
Organizational CSF	X
Orientation CSF	X
Technological CSF	X
CRM Collaborative	
CRM Analytical	X
CRM Operational	X

This research showed that not only the CRM activities have a positive and direct influence on the organizational performance; moreover we have demonstrated that the essential factors (Organizational, Orientation, and Technological) for the Customer Relationship Management approach do influence directly and positively the organizational performance. All assumed hypotheses regarding the link between the CRM Approach constructs and the Organizational Perceived Performance were validated except the hypothesis H12 which states that the CRM Collaborative Activity influences directly and positively the Perceived Performance. In fact, the CRM Collaborative activity did not exhibit

a direct link with perceived performance. The absence of the relation between the CRM Collaborative activity and the Perceived Performance can be attributed to the fact that the CRM Operational activity can be a mediator of this link.

The perceived performance results can be summarized as follow:

In this research, the CRM Approach is perceived to have two types of impacts on the organization: an Organizational focus Performance and a Customer focus Performance. The Organizational type refers to the benefits the hotel receives through the CRM Approach from an organizational focus (e.g. in terms of customer retention rate). The Customer type refers to the benefits the hotel receives through the CRM Approach from a customer focus (e.g. customer satisfaction rate). Both types are influenced by the CRM Approach, however the Customer focus Performance revealed to be the most influenced and affected by the CRM Approach.

In summary, the results, concerning the perceived performance of the CRM Approach, show that it is not sufficient for the hotel practice a CRM activity (summarized by the three activities), but it is essential that the hotel possesses organizational factors, orientation factors, and technological factors that are capable of supporting the CRM Approach.

The above findings and discussions prove once more that the Customer Relationship Management is not a technological tool. The research findings provide evidence that the CRM is an organization-wide ongoing process providing a systemic approach to aligning business processes, technologies, and the customer.

2 RESEARCH CONTRIBUTIONS

In this section, we will try to concisely recapitulate the research contributions based on the objectives and the obtained results. The results of the research provide a number of theoretical, methodological, and managerial contributions.

The general contribution of this research is the foundation of a CRM Business Value model in the Lebanese 5 star hotels.

2.1 THEORETICAL CONTRIBUTIONS

The major theoretical contribution of this research regards the development and empirical testing of the CRM Business Value model. This model brought together the Information Systems and Marketing areas in establishing a clear impact of the CRM approach on the organizational performance. More precisely, the model translates the CRM marketing approach into distinct CRM activities. This enabled us to treat the CRM activity, previously considered as a marketing approach, from an information system approach and to conceptualize its dimensions and components.

The sufficient validity and reliability of the instruments derived from the CRM Activity provide empirical support for the usefulness of this conceptualization. In addition, the finding that the CRM Collaborative activity and the CRM Analytical activity were the best predictors of the CRM Operational activity is consistent with our conceptualization of the CRM Activity and provides additional support for the validity of our CRM Activity conceptualization. This conceptualization will contribute to theory development by providing an initial framework for defining variables and formulating research questions, and by setting the starting point for more systematic research on CRM Approach Activity.

The development of a conceptual model for studying the determinants and the impact of a CRM approach is an important theoretical contribution to the advancement of theory development. By integrating a process-oriented model of IT evaluation with an evaluation technique approach, the conceptual model takes into account both (1) the role of the different critical determinants (Organizational, Orientation, Technological) on the three CRM Activities (Collaborative, Analytical, Operational), (2) the important role of the different constructs (critical determinants and CRM activities) in the CRM Approach, and (3) the relationship between the CRM approach constructs (critical determinants and CRM activities) and the organizational performance. Thus, the conceptual framework provides an important foundation for formulating alternative research models and hypotheses.

Besides, several researchers have recognized that CRM approach contributes to organizational performance in the hotel industry (Cuddihy, 2005; Haley and Watson, 2002; Siguaw and Enz, 1999). In addition, it has been well recognized that numerous factors are crucial for determining the CRM success (King and Burgess, 2008; Mendoza et al., 2007). However, these contentions had not been tested empirically and precisely in the 5 star hotel

industry. By testing the research model derived from the conceptual model, this study provides the first empirical evidence supporting these general expectations.

Additionally, the findings contribute to theory building in the Information Systems and the Marketing domain. First, the full CRM approach (CRM Activity and the determinants) has been demonstrated to positively influence the organizational performance. Second, CRM Analytical activity and the Organizational determinants have displayed that they influence the most the organizational performance unlike the widespread view regarding the role of CRM Operational and Orientation determinants.

The conceptual framework may also be used to formulate appropriate research models for explaining the inconsistent results in the literature on the business value of Information Systems and on the Critical Success Factors of the Customer Relationship Management. First, the impact of the Information System on the Organizational Performance is not solely a result of the Information System's usefulness. The organizational performance is directly influenced by factors influencing the Information System's usefulness. Second, not only organizational, orientation and technological factors are critical to the success of the CRM approach, rather this success is also dependent upon the CRM activities.

Furthermore, the research adds empirical support to the view that Customer Relationship Management necessitates a holistic conceptualization and that IT, marketing and the entire firm need to be market oriented.

2.2 METHODOLOGICAL CONTRIBUTIONS

A significant methodological contribution of this study is the fact that it questioned a special division in the hospitality sector: the 5 star hotels in Lebanon. This research highlights some specialties of this field that can be the basis for future research.

A related methodological contribution of this study is the development of an instrument for measuring the different CRM activities (Collaborative, Analytical, and Operational). The construct of each activity exhibits sufficient validity and reliability. This instrument, which measures the three CRM activities, provides critical basis that brings greater clarity to the formulation and interpretation of research questions and enables researchers to measure the same construct in the same way. In addition, this research developed an instrument for

assessing the CRM Business Value in the special context of the 5 star hotels in Lebanon. This instrument proves to be valid and reliable in the studied context.

What is more is that the research contributes to confirming the three main categories considered for the critical success factors of the CRM. The descriptive analysis of each category has adequately emerged the original constructs.

Moreover, this research contributes to confirming the various used scales of measurement, initially used in developing countries, in the Lebanese field of research. The construct End-User System Satisfaction was the only construct not to exhibit similar results as previous research. This construct did not display the five dimensions; rather it showed one dimension in our research context.

Additionally, the research provides evidence of the two roles (consultancy and support) the information systems department of the hotel can have. In order to measure those roles, we adapted two measurement scales, generally used to assess the exterior IS expertise. The results of this research contribute to validate the instrument model used to assess interior IS expertise. These two constructs exhibited validity and reliability in the studied context.

Another methodological contribution of this research concerns the methods used to collect and analyze the data. The survey was administered via the Internet, a method not yet widespread (Bachelet, 2006). As for the hypotheses analyses, the linear regression method was used to explain the relationships between the different constructs.

2.3 MANAGERIAL CONTRIBUTIONS

This research was realized with the main preoccupation of answering the expectations of the different organizations, and especially five star hotels, concerning the impact of their core approach (Customer Relationship Management) on their performance.

Given the uneven CRM approach success rate, numerous are the concerned with the evaluation of a CRM approach. This study makes important contributions to the practice of Customer Relationship Management in hotels and leads new hotels to better adopt the CRM approach.

First, the instrument developed in this study for assessing the CRM Business Value can be used as a metric for analyzing and improving the CRM approach of a five star hotel. It may be useful not only in order to evaluate the CRM approach, but also for determining the critical success factors and for determining whether the hotel is addressing all CRM activities. Such an assessment would identify the potential problems in the hotel's CRM Approach and help to plan and implement necessary corrective actions to enhance the CRM impact on the organizational performance.

Furthermore, this study provides clear evidence that the firm's level of Orientation, Organization, and Technological factors around the CRM have a positive and direct impact on the CRM Business Value. This result may help the CRM liable persons to better understand how and where CRM approach creates business value and to provide them with evidence to justify CRM related investments. In addition, this study helps those persons to realize that an effective CRM technology by itself is not sufficient to create value. Therefore an important task is to manage the entire CRM approach and to provide a desired environment where the CRM approach can lead to desired outcomes and performance.

The results of this study suggest that Organizational, Orientation, and Technological factors are essential for the CRM approach and its activities (Collaborative, Analytical, and Operational). All those factors and activities, that constitute the CRM Business Value model, have direct and positive influence on the perceived performance of the organization regarding its CRM Approach. Managers must recognize that providing a clear process and environment for collecting, analyzing, sharing and using customer's information is important for better managing customer relationships.

An important finding of this study is that CRM Collaborative and CRM Analytical influence the CRM Operational and that the perceived performance regarding the CRM Approach depends not only on the CRM Operational activity (Front Office), but also on the CRM Analytical (Back Office) and the CRM Collaborative (Interaction Channels).

Hotels looking forward to enhancing their customer relationships need therefore to consider a range of actions. This implies organizing around the CRM, cultivating a customer relationship management orientation, enhancing the technological support, and preparing and implementing a customer relationship management process. Those results have important implications for Organizational System, Top Management Support, Customer Orientation,

Competitor Orientation, Inter-Functional Coordination, End-User System Satisfaction, and Information Systems Department Expertise. In addition, this study highlights the important role of Reciprocity and Capture, Information Access, Information Sharing, and Operational CRM activity. The hotel should use all its interaction channels to collect information about customers.

3 RESEARCH LIMITATIONS

The preceding mentioned contributions must not hide the limitations of the research work. There were several limitations of this study that should be taken into account when interpreting the results; we expose some that seem essential.

First, the construct used to measure the perceived performance of the hotel is not a particular measure for hotel performance. Other measures could have been taken into account, measures related to RevPAR or occupancy percentage. However, the occupancy percentage measure was mentioned in the earlier versions of the questionnaire, but according to the many suggestions of professionals we omitted this measure due to its financial and strategic nature. Besides and in general, the performance factors are numerous, and thus it is impractical to consider all of them.

In addition, we could have included the Customer Relationship Management performance measurement evoked earlier in the research, but our main concern was to measure the perceived organizational performance due to the CRM approach and not measuring the performance of the CRM Activity in itself.

Furthermore, critical success factors are imperfect; there are additional variables which might have been included in the model. Factors related to Information Systems success and/or CRM success; nevertheless we limited our variables to limit the length or the survey and to ensure the maximum of valid responses.

Second, the present research focused only on a snapshot in time to test the hypothesized model and provide some general principles. The verification of the results should have been followed by a longitudinal case study, since the CRM is an evolving process where some of the studied variables would be expected to change over time (i.e., inter-functional coordination, customer orientation, competitor orientation).

4 DIRECTIONS FOR FURTHER RESEARCH

There are numerous directions that future research may take to extend this research, in addition to overcoming the limitations of the study discussed in the preceding section. This research provided us a new field of research that will occupy us for some extra research. The combination of Information Systems and Marketing provides the many opportunities for further investigation.

First, future research may be directed at investigating some results found in this study notably to investigate the CRM Business Value of the hotel from the customers' perception. Research can also investigate the impact of the CRM approach on the different levels of management: Operational Level, Tactical Level, and Strategic Level (Shanks et al., 2009). They can measure performance at each stage of the process and try to investigate a mediator effect of some of the CRM activity. Additionally, future research can investigate the Business Value of the CRM by examining relationships between the considered critical success factors.

Second, additional empirical research is needed to further validate and confirm the model developed in this research. Although the CRM activity constructs showed to have sufficient validity and reliability, future research needs to further validate and confirm the quality of these instruments. The use of samples from populations with different characteristics or fields is required to establish the generalization of the instrument and the model. Research can investigate the Customer Relationship Management approach in different service areas such as spas or beach resorts in Lebanon. The Lebanese tourism minister, Mr. Abboud said, in the Financial Times special report on Lebanon (2010), that foreign investment in tourism stands at $4bn and are funding new spas, hotels, and beach resorts.

Third, future research may extend this study by considering additional variables. As in any research, the range of variables is limited and therefore future research may extend this study by testing more or new relationships. Another interesting research issue is to investigate the difference between the CRM approach of different hotels depending on the age of the hotel and/or depending on its property type.

5 CONCLUSION

The research brought together the information systems domain and the marketing domain consistent with the customer relationship management. Organizational, Orientation, and Technological factors were considered and confirmed to be critical to the CRM activities and approach.

A measurement instrument was established in order to provide a scale of measurement of CRM Collaborative activity, CRM Analytical activity, and CRM Operational activity.

The first level of the research model consisted of investigating the CRM approach and its critical factors. The results showed that CRM Organizational (Organizational System, and Top Management Support), CRM Orientation (Customer Orientation, Competitor Orientation, and Inter-Functional Coordination), and CRM Technological (End-User System Satisfaction, and IS Department Support and Effectiveness) were found to be critical for the CRM activity (Collaborative, Analytical, and Operational). Furthermore, the CRM Collaborative and the CRM Analytical activities were found to be essential for the CRM Operational activity and the CRM Approach.

The second level of the research model investigated the impact of the CRM Approach on the perceived performance of the hotel, where all independent variables (Organizational CSF, Orientation CSF, Technological CSF, CRM Analytical, and CRM Operational) except CRM Collaborative proved to have a direct and positive influence on the dependent variable Perceived Performance.

The outcomes of the research met the objectives set out, which were to:

- **Establish a Customer Relationship Management Business Value model and to determine whether CRM Approach has a positive effect on the organizational performance.**
- **Verify whether Organizational, Orientation, and Technological factors are critical factors to the CRM approach and do predict the CRM Activity.**
- **Contribute to the current Information Systems and Marketing literature related to the Customer Relationship Management.**

- **Enlighten Lebanese hotels, in particular, on the subject of the Customer Relationship Management process which is a foundation of the hospitality service.**

RESUME

Dans un monde où la valeur des relations avec les clients est de plus en plus perçue comme vitale, les organisations connaissent un changement en termes de gestion, visant à mettre l'accent sur la relation client. Ce nouveau modèle de gestion relève en fait d'un changement de paradigme préconisant de se concentrer sur les clients plutôt que sur les produits (Grönroos, 1997).

En raison de situations à forte intensité concurrentielle, les entreprises s'efforcent de se concentrer sur l'attraction et la rétention des clients en leur offrant davantage de valeur ajoutée. Bose (2002) évoque la réflexion des entreprises sur l'attraction et le maintien des clients. Il synthétise le fait que les préférences de ces derniers dirigent les organisations. Les clients deviennent alors les partenaires stratégiques des entreprises. En répondant aux attentes de ces nouveaux partenaires, les entreprises offrent de meilleures prestations aux clients induisant ainsi une plus grande satisfaction client qui conduit à de meilleurs résultats financiers (Kotler, 2000).

Cette nouvelle approche de gestion est la base du marketing relationnel. Ce marketing est une philosophie organisationnelle qui se concentre sur la rétention des clients et met en avant la relation avec eux. L'implémentation d'une telle philosophie est caractérisée par l'implémentation d'une approche appelée « *Customer Relationship Management* » (CRM) (Ryals et Knox, 2001; Ryals et Payne, 2001).

Le CRM symbolise le marketing relationnel. Il vise la création, le développement et l'amélioration des relations clients. C'est une approche prévue pour améliorer et maximiser la valeur client entraînant ainsi une meilleure rentabilité de l'entreprise (Frow et Payne, 2004). En effet, le but du CRM est de perfectionner l'expérience relationnelle du client avec l'organisation qui, selon Oliver (1996), est supposée produire plus de satisfaction. Cet accroissement en termes de satisfaction conduit une meilleure fidélité ainsi qu'à une augmentation des bénéfices (Chou *et al.*, 2002).

Toutefois, le CRM nécessite une approche organisationnelle orientée client qui supporte efficacement les processus marketing, ventes et services (Carolyn *et al.*, 2003). Selon Nargundkar et Srivastava (2002), le facteur clé de succès des organisations centrée sur

le client est le fait de disposer des informations clients, leurs préférences, leurs besoins et leurs tendances qu'ils suivent. D'ailleurs, l'époque actuelle permet aux entreprises d'avoir un accès sans précédent aux données de toute transaction facilitant ainsi la collecte d'information. L'évolution des Technologies de l'Information et de Communication (TIC), qui facilitent l'interaction entre client et organisation, permet aux entreprises d'atteindre de meilleures capacités en termes de gestion des informations et de connaissances clients. Reinartz *et al.* (2004) mentionnent le fait que les organisations centrées-client implémentent les TIC afin de mieux gérer les relations clients. Ces TIC permettent une excellente gestion du cycle de la relation-client. Ce cycle est défini par les phases de création, amélioration, maintenance et résiliation de la relation client.

Cette gestion de la relation-client a toujours été un aspect vital pour les entreprises centrées-client, et le CRM est devenu le système d'information capable d'appliquer cette approche. En conséquence, les organisations ont été incitées à un déploiement important des systèmes CRM (Kim *et al.*, 2003 ; Morgan et Hunt, 1994 ; Palmatier *et al.*, 2006). L'idée qui accompagne l'implémentation du CRM est que l'organisation sera capable de mieux comprendre les clients. Le CRM permettra à l'entreprise de transformer plus précisément les données collectées pour obtenir une meilleure connaissance des clients et de gérer de manière efficiente les relations client (Galbreath et Rogers, 1999).

Malgré les multiples définitions qu'il est possible de repérer dans la littérature, définir le CRM demeure une tâche difficile (Payne et Frow, 2005). Des auteurs comme Zablah *et al.* (2004) ou encore Bull (2003) ont conclu qu'une véritable conceptualisation du CRM manque encore. Néanmoins, il est notable que l'approche par les systèmes d'information et l'orientation technologique sont les classiques de toute approche CRM.

Pourtant, en dépit des progrès technologiques et de volumineux investissements en CRM, cette approche soulève souvent d'importantes difficultés et se caractérise par de multiples exemples d'échecs d'implémentation (Davids, 1999 ; Doherty et Lockett, 2007). En effet, presque 80% des projets CRM ne parviennent pas à satisfaire les objectifs attendus et ne rapportent aucun bénéfice (Bush *et al.*, 2005). En revanche, un certain nombre de projets de CRM réussis donne une preuve de la pertinence du concept et apporte des directives afin de réussir l'approche CRM (Kotorov, 2003). On constate en fait que malgré les nombreuses mises en question concernant l'efficacité du CRM, nombreuses sont les organisations qui se

lancent dans cette approche et qui adoptent les outils technologiques correspondants (Bohling *et al.*, 2006 ; Boulding *et al.*, 2005 ; Reinartz *et al.*, 2004).

L'ample littérature traitant le CRM a fourni des réflexions mitigées quant à l'impact du CRM sur la performance de l'organisation. Les travaux n'ont pas pu offrir aux directeurs des résultats convaincants soutenant l'intérêt et la force du CRM. Ces résultats non concluants ouvrent alors la voie à des recherches supplémentaires pour asseoir la valeur de l'approche CRM (Mithas *et al.*, 2005 ; Romano et Fjermestad, 2006).

La fragmentation concernant le CRM, son succès et son impact sur l'organisation ont nourri notre questionnement principal. Notre problématique relève par conséquent de la valeur du CRM dans l'organisation.

Selon Bose (2002), les sociétés de service, du fait qu'elles collectent et accumulent beaucoup de données clients, sont vraisemblablement celles qui profitent le plus du CRM. Le secteur des services ne cesse de croître. On estime qu'il emploie la majorité de la main-d'œuvre dans la plupart des pays. De plus, il contribue jusqu'à 70% du PIB dans les pays développés (ex. Japon, Canada, USA, …). Cette contribution croissante n'est pas limitée à ces pays. Dans les pays émergents (ex. Brésil, Liban, Inde, Indonésie), le secteur des services contribue de façon importante au PIB. Par exemple au Liban, 70% du PIB est fourni par le secteur des services.

Cette concentration accrue sur le secteur des services a provoqué une attention renforcée vers l'orientation client. Par conséquent et sans surprise, les organisations du secteur des services (hôtels, banques, assurances…) furent les premières à adopter le CRM. Lin et Su (2003) affirment que le CRM permet à l'hôtel d'offrir plus de valeur aux clients. De plus, le CRM est capable de fournir à l'hôtel un moyen systémique pour attirer, acquérir, et retenir les clients, tout en menant vers un accroissement de la fidélité du client et du niveau de la rentabilité (Cuthbertson et Laine, 2004).

L'industrie hôtelière connaît une situation de concurrence forte et une rotation croissante des clients. Les clients deviennent de plus en plus exigeants et coûteux à acquérir et en conséquence, la satisfaction de leurs attentes représente la clé de succès pour les hôtels (Oslen et Connolly, 2000 ; Gilmore et Pine, 1997). Le CRM devient un sujet courant lors des conseils d'administration puisqu'il représente une source d'avantage concurrentiel (Grant,

1991 ; Teece *et al.*, 1997). Appliqué au contexte hôtelier, le CRM résulte en une croissance au niveau de la performance (Haley et Watson, 2002) et de la productivité (Siguaw et Enz, 1999). Il permet l'optimisation du taux d'occupation, l'augmentation de la productivité, et apporte une croissance de la satisfaction et de la fidélité des clients (Cuddihy, 2005).

Dans son rapport concernant le marché hôtelier, Deloitte (2010) affirme que les hôtels du Moyen-Orient sont les plus rentables. Le rapport indique que ces hôtels ont affiché les taux d'occupation et de RevPAR (revenu par chambre disponible) les plus élevés. De plus, 2009 fut la seconde année consécutive durant laquelle Beyrouth (la capitale du Liban) a affiché la croissance la plus importante au niveau mondial. Cette croissance a continué au premier trimestre de l'année 2010 selon le ministère du tourisme du Liban.

Selon les orientations citées précédemment en ce qui concerne le secteur des services et plus précisément le secteur hôtelier au Liban, nous avons adopté à la base de notre questionnement l'examen de la valeur du CRM dans les hôtels au Liban. Dans ce contexte, nous allons répondre à la question suivante : « quel est l'impact du CRM sur la performance des hôtels dans le cas des hôtels 5 étoiles au Liban ? »

L'objectif principal de la présente recherche est donc de conceptualiser la « Business Value du CRM » dans les hôtels. En cela, nous tenterons d'identifier les déterminants organisationnels, d'orientation, et technologiques du CRM et leur impact sur sa « Business Value ».

La « Business Value du CRM » fait référence à l'impact du CRM sur la performance de l'organisation (Melville *et al.*, 2004) et implique l'évaluation d'une telle approche.

Par conséquent, les objectifs de la recherche peuvent être énoncés comme suite :

- Synthétiser le cadre de l'approche Customer Relationship Management,
- Développer un cadre conceptuel définissant la Business Value du CRM,
- Recenser les conditions préalables nécessaires au CRM,
- Développer un modèle de recherche basé sur le cadre conceptuel et sur les conditions préalables concernant le CRM. Ensuite, tester empiriquement ce modèle de recherche ainsi que les hypothèses résultantes,

- Explorer la Business Value du CRM.

D'une façon générale, la présente recherche cherche à acquérir une compréhension du CRM dans les hôtels 5 étoiles au Liban.

Le document comporte six sections à l'exclusion de l'introduction.

La première section fournit une revue de la littérature concernant l'approche Customer Relationship Management. Le concept du CRM n'est pas nouveau ; il a toujours existé dans les organisations. C'est une approche fondamentale afin de faire du business. Le but est d'être orienté-client afin de satisfaire mieux le client en lui offrant la meilleure valeur client.

Bien que le CRM existe depuis longtemps, ce n'est que durant la dernière décennie que cette approche a eu un impact considérable sur le monde et les organisations (Nairn, 2002). Cependant, le terme CRM suscite toujours un débat autour de sa définition. En se basant sur la littérature, nous présentons une délimitation synthétique de l'approche CRM que nous considérons tout au long de notre recherche. La perspective du CRM adoptée dans cette recherche considère le CRM comme suit : le CRM est un processus organisationnel continu qui fournit une approche systémique pour aligner les différents processus de l'organisation, les technologies, et les clients.

Après avoir défini le CRM, nous explorons les conséquences de cette approche. De façon similaire à toute approche basée sur les technologies de l'information et de communication, le CRM présente plusieurs avantages et cela à différents niveaux dans l'organisation. Outre ces aspects positifs, nous aborderons également les désavantages du CRM.

Ensuite, nous éclairons les bases du CRM. Nous présentons une revue des concepts fondamentaux décrivant le CRM évoqués dans la littérature. Nous explorons en détail le concept de Peppers et Rogers (2004) que nous adoptons dans notre recherche. Cette conception du CRM est divisée en deux principales activités : l'analyse, et l'action. Dans l'approche CRM, l'analyse représente le CRM Analytique. Elle concerne le back office du CRM et est dédiée au traitement de l'information : de la collecte des données jusqu'au partage de l'information et de la connaissance. Alors que l'étape action forme le CRM

Opérationnel. C'est le front office du CRM et traite la communication avec le client tout en utilisant la connaissance acquise par l'analyse pour personnaliser le service client.

Ensuite, nous présentons le rôle des TIC dans l'approche CRM et cela dans les trois grandes catégories : CRM Collaboratif, CRM Analytique, et CRM Opérationnel (Greenberg, 2004).

Nous concluons la première section en considérant le CRM de l'hôtellerie. Nous présentons les bienfaits du CRM pour les hôtels et nous détaillons le rôle du CRM dans le cycle-client de l'hôtel. Le CRM est transverse au cycle-client et cela tout au long des phases de pré-arrivée, d'arrivée, de séjour, et de la phase de départ (Kasavana et Brooks, 2005).

La deuxième section concerne les fondations théoriques et conceptuelles de la recherche. Cette section traite la Business Value des systèmes d'information en général. Aborder la « business value » soulève la question de la productivité des systèmes d'information et de leur évaluation.

L'objectif de cette section est de développer un modèle conceptuel qui définit la « business value » des systèmes d'information. Afin de répondre à notre but, la section 2 explore la productivité des systèmes d'information, les différents cadres de « business value » et les différentes techniques d'évaluation des systèmes d'information.

Nous montrons dans cette section que les systèmes d'information ne peuvent pas produire seuls une performance organisationnelle. Cependant, un système d'information requiert une gestion de facteurs clés pour mieux explorer les différentes fonctionnalités du système. Subséquemment, et avant de développer le modèle de recherche basé sur la conclusion de la section 2, nous allons identifier les conditions préalables au CRM.

La troisième section fait donc l'objet des définitions des préalables du CRM et du développement d'un modèle de recherche qu'il sera possible de tester empiriquement. Malgré la volumineuse littérature traitant des facteurs clés de succès des systèmes d'information, King et Burgess (2008, p.240) soulignent le besoin de telles définitions en matière de CRM. Nous présentons une revue de la littérature des facteurs clés de succès pour les systèmes d'information de CRM. Ensuite, nous classons les facteurs retenus suivant trois grandes catégories de facteurs : organisationnel, orientation, et technologiques.

En conformité avec la première section, nous définissons trois variables pour décrire l'activité CRM : CRM Collaboratif, CRM Analytique, et CRM Opérationnel.

Subséquemment, la troisième section enveloppe les sections antérieures. Nous présentons le modèle de recherche que nous proposons de tester qui émane des éléments conceptuels présentés dans la section 2. Nous proposons un ensemble d'hypothèses relatives à ce modèle dont l'examen devrait permettre d'expliquer la « business value du CRM ». Ces hypothèses sont classées en conformité avec les parties du modèle de recherche. La première partie traite des facteurs clés de succès du CRM. La deuxième partie examine les différents liens entre les variables et la performance de l'organisation.

La section 4 décrit le cadre de la recherche. Comme exposé auparavant, le questionnement de base est d'une nature contemporaine et nécessite une approche systémique qui considère l'organisation comme un système qui peut être divisé en sous-systèmes. A ces fins, le paradigme positiviste est le plus adéquat. Nous utilisons une approche quantitative pertinente dans un cadre hypothético-déductif.

Afin de répondre à notre question de recherche, nous avons d'abord procédé à une phase exploratoire. Nous avons conduit des entretiens avec quatre directeurs CRM dans des hôtels 5 étoiles au Liban. Deux d'entre eux sont responsables du Front Office, l'un du Marketing, et le dernier des Ventes. Ces entretiens n'ont pas fait émerger de nouvelles variables de recherche. Toutefois ils ont apporté confirmation aux facteurs déjà considérés sur la base de la littérature.

Après la phase exploratoire, nous avons construit le principal instrument de recherche employé ici, qui n'est autre qu'un questionnaire qui a été publié sur internet. Le lien du questionnaire a été envoyé par courriel aux participants dans la recherche. Le terrain de recherche est composé de 24 hôtels 5 étoiles. Le choix des 5 étoiles au Liban est basé sur l'intérêt qu'ils accordent au CRM, et sur leurs capacités à investir pour renouveler leur CRM.

La liste des 24 hôtels a été élaborée en se basant sur les informations du ministère du tourisme et du syndicat des propriétaires des hôtels au Liban. Douze de ces hôtels sont des hôtels de chaîne, et les douze autres sont gérés indépendamment sachant que deux d'entre eux forme une alliance. La liste des 24 a été réduite à 23 hôtels suite aux travaux de

rénovation dans un hôtel. Les 23 hôtels ont été contactés afin de sonder l'intérêt accordé à notre recherche, ce qui a réduit notre panel final à 21 hôtels.

Nous avons contacté les responsables CRM (Front Office, Marketing, et Ventes) dans ces hôtels afin de répondre à notre enquête ce qui élève la taille de l'échantillon final à 63 personnes. A la fin de la phase de collecte, nous avons recueilli 43 réponses dont 39 analysables. Ce taux élevé de réponse est attribué d'une part à l'intérêt que les personnes ont trouvé pour notre recherche et d'autre part aux relations professionnelles que nous avons gardées et à notre réseau. Ensuite, la section 4 présente des analyses descriptives de l'échantillon final et ces caractéristiques.

En outre des techniques de collecte, nous présentons l'instrument de recherche. Le questionnaire mesure les différents construits de la recherche. Il est composé de 139 questions et est exposé dans l'annexe A. Le questionnaire a subi plusieurs phases de pré-test avec différentes personnes de différents secteurs d'expertise.

Nous concluons la section 4 par un récapitulatif des différentes méthodes et procédures qui seront appliquées afin de procéder à l'analyse de données et le test des hypothèses.

Section 5 met en valeur les analyses des données et les tests des hypothèses de recherche. En première partie, on montre la validité et la fiabilité des échelles de mesures utilisées pour mesurer les différents construits du modèle de recherche. En deuxième partie, nous démontrons la validité discriminante des construits. Nous concluons la partie de l'analyse des données par un récapitulatif des construits et de leur échelle de mesure. Cette première partie nous a permis de garder la structure de base des trois facteurs préalables au CRM. Ces trois facteurs sont : organisationnel, orientation, et technologique. L'analyse des données sur les activités CRM nous a permis de définir 5 activités CRM au lieu des trois de base (souvent décrites dans la littérature). Le CRM Collaboratif a fait sortir deux structures : une structure propre aux canaux de communications, et une deuxième structure définissant la réciprocité avec le client et la capture des données. L'analyse des donnés sur la variable CRM Analytique a fait émerger deux structures. Une structure du CRM qui traite de l'accès à l'information, et une autre structure représentant le partage de l'information. Le CRM Opérationnel a gardé sa structure unidimensionnelle. La performance organisationnelle, et pareillement à Croteau et Li (2003) a fait émerger deux catégories : une performance orientée

interne à l'entreprise et qui est représentée par Performance Organisationnelle. La deuxième performance est orientée vers le client et est représentée par Performance Client.

En seconde partie de la section 5, nous montrons les tests des hypothèses. Ces tests visent à confirmer ou rejeter les hypothèses de recherche en ce qui concerne les deux sous-modèles de la recherche.

La section 5 est soutenue par l'annexe B dans laquelle on examine les facteurs clés de succès du CRM et cela un par un indépendamment des trois catégories de facteurs (organisationnel, orientation, technologique).

La dernière section du document constitue sa conclusion. Dans cette conclusion, nous présentons les résultats et leurs discussions. Nous discutons aussi des apports de la recherche, de ses limites et des voies futures de recherche qu'elle implique.

Les résultats et les discussions sont divisés en cinq parties. La première partie développe les résultats concernant les facteurs organisationnels. Les deux facteurs organisationnels que nous avons pris en considération dans cette recherche sont le support de la direction, et le système organisationnel. Nous avions proposé un ensemble d'hypothèses liant les facteurs organisationnels aux différentes activités CRM et à la performance organisationnelle. Les résultats concernant cet ensemble d'hypothèses ont contesté l'idée d'un lien positif et direct entre les facteurs organisationnels et le CRM Collaboratif et le CRM Analytique. Les analyses détaillées des facteurs organisationnels montrent que le support de la direction est l'élément essentiel pour le succès du CRM, ses activités et sa « business value ».

La deuxième partie de la section 6 traite les résultats du facteur orientation dans la « business value du CRM». Le facteur orientation représente l'orientation client, l'orientation compétiteur, et la coordination inter-fonctionnelle. L'ensemble des hypothèses considérant le facteur orientation ont été validé. Ces résultats ont été vus car l'orientation est un facteur essentiel dans l'approche CRM et sa « business value ». Cependant, cette recherche a démontré que les trois catégories du facteur orientation sont importantes pour la réussite d'un CRM. De plus, cette recherche met en avant la coordination inter-fonctionnelle comme étant le pilier du facteur orientation dans la « business value du CRM ».

La troisième partie de la partie résultats et discussion décrit l'ensemble des résultats liées au facteur technologique. Ce facteur étant construit par la satisfaction des utilisateurs, l'efficacité du département SI, et le support du département SI. Les résultats du test des hypothèses montrent que toutes les hypothèses ont été validées. Toutefois, les analyses détaillées de chaque variable constituant le facteur technologique dévoilent que la satisfaction des utilisateurs est la variable qui a le plus de poids sur le rôle du facteur technologique dans la « business value du CRM ». L'implication du département des systèmes d'information joue un rôle secondaire dans le CRM Collaboratif, le CRM Opérationnel et la performance organisationnelle en général.

La quatrième partie de la sixième section du document énonce les résultats et discussions concernant les activités CRM. Nous avons montré que le CRM Collaboratif et le CRM Analytique sont essentiels pour le CRM Opérationnel. L'impact de l'activité CRM sur la performance organisationnelle passe par les deux CRM : Analytique et Opérationnel. Le CRM Collaboratif n'a pas démontré un effet positif et direct sur la performance organisationnelle.

La cinquième partie de la discussion des résultats a montré que toutes les variables considérées dans la recherche ont un effet positif et direct sur la performance organisationnelle et jouent un rôle dans la « business value du CRM ». La seule variable ne présentant pas un effet direct et positif sur la performance organisationnelle est le CRM Collaboratif.

La section 6 continue en énumérant des contributions de notre recherche tant aux plans théorique, méthodologique que managérial. Ensuite, nous citons quelques limites de la présente recherche et mentionnons des voies futures de recherche qui répondent aux limites et fondent la base pour de prochaines recherches.

APPENDIX A

1 LETTER TO CRM RESPONDENT

[Date]

[The contact person]

[The Hotel Information]

Dear [the contact person]:

I am writing you to request your participation in a research study I am conducting as part of my doctoral dissertation at Grenoble Universités, France. My study addresses business value of customer relationship management (CRM) approach in the hotel industry. For your convenience, a more detailed summary of my study is enclosed with the letter.

The purpose of my study is to gain an understanding as to the critical success factors of the customer relationship management approach. A survey of the CRM literature leads to some basic conclusions why some CRM approaches have huge benefits across the enterprise and others becomes costly. These factors are categorized into three groups:

- Technological
- Organizational
- Orientation

To answer questions related to the above categories, a survey is posted on the internet with the following link: http://www.surveymonkey.com/s/JVYPQHP.

The survey's questions are close-ended questions. All questions address one of the three categories mentioned aforementioned.

I want to emphasize and assure you that I will treat all data as confidential, including the name of your company, the individuals participating in the interviews, and any proprietary information. All data will be reported in aggregate only. If necessary, I would be happy to sign a confidentiality or non-disclosure agreement.

In appreciation for participating in my study, I will gladly make my results available to you and your company.

Finally, I wish to thank you in advance for your time, willingness, and agreement to participate in my study. If you have any questions or concerns, please feel free to contact me via telephone (+961-3-441698) or by electronic mail (imad@hotmail.com).

Sincerely, Imad F. Nakhoul

2 CRM STUDY OVERVIEW

Customer relationship management, often shortened to CRM, is a customer-oriented management approach that aims to increase customer satisfaction and customer loyalty by offering a more responsive and customized service to each guest. It relies basically on Information and Communication technologies (ICT). It is most commonly used in functional areas such as customer support and service (front office), sales (reservation) and marketing.

CRM means different things to different companies. Just as customers are unique, companies are unique. Hotels use the CRM differently, but the main objective is to optimize the occupancy. In the hospitality sector, CRM is becoming more and more a fundamental way of doing business and to survive in this very competitive and technological market.

Our review of the literature and our interviews with hospitality consultants identify five crucial tasks required for a successful CRM activity in service organization. As mentioned in the email, our focus is to gain an understanding as to the critical success factors of the customer relationship management approach.

The five crucial tasks identified are:

- Getting relational: a two-way affection
- Information capture and clean
- Information integration and analysis
- Information share and access
- Information use

Our PhD framework will identify the weight of the technological, organizational and orientation factors for the attainment of a successful CRM approach.

The questions will act with regards to the following categories:

- Information and communication technologies
- Top management support
- Organizational culture
- Organizational system
- End-user system satisfaction
- CRM process
- CRM perceived performance
- Information Systems Effectiveness
- Information Systems Support

I want to emphasize and assure you that I will treat all data as confidential, including the name of your company, the individuals participating in the interviews, and any proprietary information. All data will be reported in aggregate only. If necessary, I would be happy to sign a confidentiality or non-disclosure agreement. In appreciation for participating in my study, I will gladly make my results available to you and your company.

3 THE CRM SURVEY

1. INTRODUCTION

This survey is a part of my doctoral (PhD) dissertation at Grenoble Universités, France.

The purpose of my study is to gain an understanding as to the critical success factors of the Customer Relationship Management (CRM) approach.

Customer relationship management is customer-oriented management approach that aims to increase customer satisfaction and customer loyalty by offering a more responsive and customized service to each guest.

FOR THE PURPOSE OF MY THESIS, PLEASE BE KIND TO FILL IN THE ENTIRE QUESTIONNAIRE. I BELIEVE IT WONT TAKE YOU MORE THAN 25 MINUTES.

Finally, I wish to thank you in advance for your time, willingness, and agreement to participate in my study. If you have any questions or concerns, please feel free to contact me via telephone (+33-6-11214126 or +961-3-441698) or by electronic mail (imadn@hotmail.com).

Sincerely,
Imad F. Nakhoul

2. General Information

1. What is your job title?

2. How long have you held this position?

3. How many employees work in your department?

4. How long have you been working for this organization?

5. How long have you been working in the hospitality sector?

6. What is your organization's property type?

- ◯ Independently managed
- ◯ Part of a hotel chain
- ◯ Part of a hotel alliance

7. How old is your hotel?

8. What is your organizations' management nationality?

- ◯ Lebanese
- ◯ Arab
- ◯ European
- ◯ American
- ◯ Other

9. What is your hotel size?

Number of rooms?

Number of restaurants?

Number of conference rooms?

Number of ball rooms?

10. What is your organization's customer satisfaction rate?

- ◯ Less than 20%
- ◯ 20%-40%
- ◯ 40%-60%
- ◯ 60%-80%
- ◯ More than 80%

11. Your hotel's customers

	Less than 20%	20%-40%	40%-60%	60%-80%	More than 80%
Professional (companies, organizations...)	◯	◯	◯	◯	◯
Individuals	◯	◯	◯	◯	◯
Groups or tour operator, agencies	◯	◯	◯	◯	◯
Lebanese customers	◯	◯	◯	◯	◯
Arab customers	◯	◯	◯	◯	◯
Other: International customers	◯	◯	◯	◯	◯

3. CRM INFORMATION AND COMMUNICATION TECHNOLGIES AVAILABILITY

1. Please check which of the following CRM Technology does your hotel have? Please check all that apply.

	Yes	No	Planning to
Internet & WiFi	◯	◯	◯
Property Management System	◯	◯	◯
Central Reservation System	◯	◯	◯
Customer Database	◯	◯	◯
Call Center	◯	◯	◯
Hotel Website	◯	◯	◯
Room Management System	◯	◯	◯
Sales Forces Automation	◯	◯	◯
Yield/Revenue Management System	◯	◯	◯
Food and Beverage System	◯	◯	◯
Conference and Banqueting System	◯	◯	◯
Marketing and Sales System	◯	◯	◯
Activity Scheduling System	◯	◯	◯
Smart Key Card System	◯	◯	◯
TV Based Service	◯	◯	◯
Automated Mini-bars	◯	◯	◯
Telephone System	◯	◯	◯
Data Hygiene (data cleaning)	◯	◯	◯

4. CRM PROCESS

CRM Process is the activity of communicating, capturing, integrating, sharing and using information with the client.

1. Using the following scale, please indicate HOW YOU PERCEIVE your organization's CRM process.

	Highly Disagree	Disagree	Neutral	Agree	Highly Agree	N/A
The hotel enables customers to have interactive communication with	◯	◯	◯	◯	◯	◯
The hotel provides customers with multiple ways to contact with	◯	◯	◯	◯	◯	◯
The hotel focuses on communicating periodically with the customers	◯	◯	◯	◯	◯	◯
The hotel maintains a regular contact with the customers	◯	◯	◯	◯	◯	◯
The hotel collects customer information on an ongoing basis	◯	◯	◯	◯	◯	◯
The hotel captures information from internal sources within the organization	◯	◯	◯	◯	◯	◯
The hotel collects customer information using external sources (market research agencies, network…)	◯	◯	◯	◯	◯	◯
The information collected from customers is updated in a timely fashion	◯	◯	◯	◯	◯	◯
The hotel uses customer interactions to collect information	◯	◯	◯	◯	◯	◯
The hotel integrates customer information from the various functions that interact with customers (front office, marketing, sales…)	◯	◯	◯	◯	◯	◯
The hotel integrates internal customer information with customer information from external sources	◯	◯	◯	◯	◯	◯
The hotel integrates customer information from different communication and interaction channels (in room ICT, fax, email, telephone…)	◯	◯	◯	◯	◯	◯
The hotel merges information collected from various sources for each customer	◯	◯	◯	◯	◯	◯
In the organization,	◯	◯	◯	◯	◯	◯

relevant employees find it easy to access required customer information	○	○	○	○	○	○
In the organization, relevant employees can access required customer information even when other departments/functional areas have collected it	○	○	○	○	○	○
In the organization, relevant employees always have access to up-to-date customer information	○	○	○	○	○	○
In the organization, relevant employees are provided the information required to manage customer relationships	○	○	○	○	○	○
The hotel uses customer information to develop customer profiles	○	○	○	○	○	○
The hotel uses customer information to segment markets	○	○	○	○	○	○
The hotel uses customer information to assess customer retention behavior	○	○	○	○	○	○
The hotel uses customer information to identify appropriate channels to reach customers	○	○	○	○	○	○
The hotel uses customer information to customize the offers and services	○	○	○	○	○	○
The hotel uses customer information to identify the best customers	○	○	○	○	○	○
The hotel uses customer information to assess the lifetime value of the customers	○	○	○	○	○	○
The hotel uses customer information to identify the potential markets	○	○	○	○	○	○
The hotel uses customer information to identify the potential customer’s types	○	○	○	○	○	○

5. INTERNAL EXPERTISE

1. Using the following scale, please indicate HOW YOU PERCEIVE your IT department effectiveness.

	Very Low	Low	Medium	High	Very High	N/A
Effectiveness in performing information requirements analysis	◯	◯	◯	◯	◯	◯
Effectiveness in recommending suitable computer solution	◯	◯	◯	◯	◯	◯
Effectiveness in managing implementation	◯	◯	◯	◯	◯	◯
Relationship with other parties in the project (CEO, users, vendor)	◯	◯	◯	◯	◯	◯

2. Using the following scale, please indicate HOW YOU PERCEIVE your IT department support.

	Very Low	Low	Medium	High	Very High	N/A
Adequacy of technical support during CRM Implementation	◯	◯	◯	◯	◯	◯
Adequacy of technical support after CRM implementation	◯	◯	◯	◯	◯	◯
Quality of technical support	◯	◯	◯	◯	◯	◯
Adequacy of training provided	◯	◯	◯	◯	◯	◯
Quality of training provided	◯	◯	◯	◯	◯	◯
Relationship with other parties in the project (CEO, users, consultant)	◯	◯	◯	◯	◯	◯

6. TOP MANAGEMENT SUPPORT

1. Using the following scale, please indicate HOW YOU PERCEIVE your organization's top management support.

	Highly Disagree	Disagree	Neutral	Agree	Highly Agree	N/A
Top management's contact with the executive sponsor (s) on CRM related issues is frequent	◯	◯	◯	◯	◯	◯
CRM is regarded as a high priority by top management	◯	◯	◯	◯	◯	◯
The executive sponsors(s) are regularly involved through the CRM project	◯	◯	◯	◯	◯	◯
Top management perceives CRM to be part of the organization's vision	◯	◯	◯	◯	◯	◯
Top management provides sufficient resources for CRM	◯	◯	◯	◯	◯	◯
Top management usually provides constructive feedback on the appropriateness of CRM applications	◯	◯	◯	◯	◯	◯

7. ORGANIZATIONAL CULTURE

The organizational culture is the deeply embedded values and beliefs that establish the norms for appropriate behavior.

1. Using the following scale, please indicate HOW YOU PERCEIVE your organization's culture.

	Highly Disagree	Disagree	Neutral	Agree	Highly Agree	N/A
Showing commitment to customers	◯	◯	◯	◯	◯	◯
Creating services that offer value for customers	◯	◯	◯	◯	◯	◯
Understanding customer needs	◯	◯	◯	◯	◯	◯
Having customer satisfaction a major objective	◯	◯	◯	◯	◯	◯
Measuring customer satisfaction	◯	◯	◯	◯	◯	◯
Providing follow-up services	◯	◯	◯	◯	◯	◯
People in charge of various services discuss competitor information	◯	◯	◯	◯	◯	◯
People in charge of various service units respond rapidly to competitors' actions	◯	◯	◯	◯	◯	◯
Top managers' discuss competitors' strategies	◯	◯	◯	◯	◯	◯
Top managers' target opportunities for competitive advantage	◯	◯	◯	◯	◯	◯
Various service units work close together to meet customers' needs	◯	◯	◯	◯	◯	◯
Various service units share business information with each other	◯	◯	◯	◯	◯	◯
Business strategies are integrated between service units	◯	◯	◯	◯	◯	◯
All service units work together in offering value to customer	◯	◯	◯	◯	◯	◯
Different service units share resources with each other	◯	◯	◯	◯	◯	◯

8. ORGANIZATIONAL SYSTEM

Organizational system represents the way organizations operationalize the themes that pervade everyday behavior.

1. Using the following scale, please indicate HOW YOU PERCEIVE your organization's system.

	Highly Disagree	Disagree	Neutral	Agree	Highly Agree	N/A
The hotel focuses on customer needs while designing business processes	◯	◯	◯	◯	◯	◯
In the hotel, employees receive incentives (encouragements) based on customer satisfaction measures	◯	◯	◯	◯	◯	◯
A key criterion used to evaluate the customer contact employees is the quality of their customer relationships	◯	◯	◯	◯	◯	◯
In the hotel, business processes are designed to enhance the quality of customer interactions	◯	◯	◯	◯	◯	◯
The hotel is organized around customer-based groups rather than product or function-based groups	◯	◯	◯	◯	◯	◯
Various functional areas coordinate their activities to enhance the quality of customer experience	◯	◯	◯	◯	◯	◯

9. END-USER SYSTEM SATISFACTION

1. Using the following scale, please indicate YOUR DEGREE OF SATISFACTION with your organization's systems.

	Highly Disagree	Disagree	Neutral	Agree	Highly Agree	N/A
The system is able to provide the precise information you need	◯	◯	◯	◯	◯	◯
The information content provided meets your needs	◯	◯	◯	◯	◯	◯
The system provides reports that seem to be just about exactly what you need	◯	◯	◯	◯	◯	◯
The system provides sufficient information	◯	◯	◯	◯	◯	◯
The system is accurate	◯	◯	◯	◯	◯	◯
You are satisfied with the accuracy of the system	◯	◯	◯	◯	◯	◯
The system's output is presented in a useful format	◯	◯	◯	◯	◯	◯
The system's output information is clear	◯	◯	◯	◯	◯	◯
The system is a user friendly	◯	◯	◯	◯	◯	◯
The system is easy to use	◯	◯	◯	◯	◯	◯
The system provides information needed on time	◯	◯	◯	◯	◯	◯
The system provides up-to-date information	◯	◯	◯	◯	◯	◯

10. PERCEIVED PERFORMANCE

CRM perceived performance is the benefits that the hotel will receive through the use of the CRM system.

1. Using the following scale, please indicate HOW YOU PERCEIVE the benefits that your organization received through the use of CRM.

	Very Low	Low	Medium	High	Very High
The organization's satisfaction with customer retention rate for old customer is	◯	◯	◯	◯	◯
The organization's satisfaction with customer retention rate for new customer is	◯	◯	◯	◯	◯
The organization's satisfaction with customer loyalty is	◯	◯	◯	◯	◯
The organization's satisfaction with market share gains in targeted customer segments is	◯	◯	◯	◯	◯
The organization's satisfaction with properties occupancy rate is	◯	◯	◯	◯	◯
The organization's perceived customer satisfaction in terms of innovative products and services is	◯	◯	◯	◯	◯
The organization's perceived customer satisfaction in terms of customized products and services is	◯	◯	◯	◯	◯
The organization's perceived customer satisfaction in terms of convenience to the customer is	◯	◯	◯	◯	◯
The organization's perceived customer satisfaction in terms of the employees' team spirit is	◯	◯	◯	◯	◯
The organization's anticipation of emerging customers' need is	◯	◯	◯	◯	◯
The organization's perceived customer satisfaction in terms of on time delivery of products and services is	◯	◯	◯	◯	◯

11. TECHNOLOGICAL READINESS

1. Using the following scale, please indicate HOW WOULD YOU JUDGE your organization's ICT technologies in each function.

	Highly Disagree	Disagree	Neutral	Agree	Highly Agree	N/A
Provides sales force with guest information	◯	◯	◯	◯	◯	◯
Provides sales force with competitor information	◯	◯	◯	◯	◯	◯
Assign leads and prospects to appropriate sales personnel	◯	◯	◯	◯	◯	◯
Provides customized offers to sales people	◯	◯	◯	◯	◯	◯
Provides sales force with leads for cross/up sell opportunities	◯	◯	◯	◯	◯	◯
Enables inventory management	◯	◯	◯	◯	◯	◯
Controls sales through multiple sales channels	◯	◯	◯	◯	◯	◯
Supports marketing planning and budgeting	◯	◯	◯	◯	◯	◯
Analyzes responses to marketing campaigns	◯	◯	◯	◯	◯	◯
Automates routine activities such as providing promotional literature	◯	◯	◯	◯	◯	◯
Enables management of marketing promotion	◯	◯	◯	◯	◯	◯
Generates customized offers	◯	◯	◯	◯	◯	◯
Customizes our communication to guests	◯	◯	◯	◯	◯	◯
Allows guest support personnel to access data on guest interactions with all functional areas	◯	◯	◯	◯	◯	◯
Provides guests support personnel to access to a knowledge base of solutions to commonly occurring problems	◯	◯	◯	◯	◯	◯
Schedules and tracks service delivery	◯	◯	◯	◯	◯	◯
Is able to customize service scripts to the particular guest's needs	◯	◯	◯	◯	◯	◯
Enables assessment of channel performance	◯	◯	◯	◯	◯	◯
Enables forecast of guests preferences	◯	◯	◯	◯	◯	◯
Measures guest loyalty	◯	◯	◯	◯	◯	◯
Calculates guest life time value	◯	◯	◯	◯	◯	◯
Calculates guest retention rates	◯	◯	◯	◯	◯	◯
Calculates rooms occupancy rates	◯	◯	◯	◯	◯	◯
Calculates banqueting properties occupancy rates	◯	◯	◯	◯	◯	◯
	◯	◯	◯	◯	◯	◯

Combines guest transaction data with external source data	◯	◯	◯	◯	◯	◯
Integrates guest information from different contact points (e.g., mail, telephone, fax, web…)	◯	◯	◯	◯	◯	◯
Allows relevant employees access to unified guest data	◯	◯	◯	◯	◯	◯

APPENDIX B

Appendix B is intended to expand the research explicative analyses (section 5). Analyses in this appendix investigate the factors behind the considered big three categories (organizational, orientation, and technological).

1 THE CSF FACTORS FOR THE CRM DIMENSIONS

1.1 ORGANIZATIONAL CSF FACTORS AND CRM_O

Knowing that CSF_ORGA can influence the CRM Operational activity, we will further investigate this relationship in order to identify what factor(s) of CSF_ORGA can predict CRM_O and see the factor(s) that can best predict a variance in the CRM_O.

In order to identify the factors that can predict the dependent variable CRM_O, we will perform a correlation analysis on constructs OS, TMS, and CRM_O. The table below presents the correlation analysis.

This table shows that Organizational System (OS) is not significantly correlated with CRM_O and consequently, this factor independently cannot directly and positively predict any variance in the dependent variable CRM_O.

Table 100 Correlation Matrix CSF_ORGA factors and CRM_O

	CRM_O	OS	TMS
CRM_O	1		
OS	,282	1	
TMS	,447**	,302	1

****. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).**

The results in this table show that only TMS can independently predict the CRM_O variable. We will now proceed to verify whether TMS reliably predicts a variance in the Operational CRM activity variable. In order to do so, we will proceed to simple regressing CRM_O on TMS.

Table 101 Simple Regression CRM_O on TMS

	TMS					
CRM_O	0,447**	R^2	F	*p*	t	D-W
		0,200	8,733	0,006	2,955	2,057
****. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).**						

The significant correlation shows that as TMS increases the Operational CRM activity also increases. The independent variable TMS can explain 20% of variance in the CRM_O, and the regression is statistically significant. F=8,733, $p<0.005$, and t>2.

1.2 ORIENTATION CSF FACTORS AND CRM COLLABORATIVE

The multiple regression results below show that the variable OC_Cu of the CSF_ORIEN construct best predicts the CRM_Collaborative.

TABLE 102 MULTIPLE REGRESSION RESULTS OF CRM_COLLABORATIVE ON CSF_ORIEN FACTORS

Model 1	Variables	Beta	t	Sig.	Tolerance	VIF
R=0,435, R^2=0,189, F=8,633, *p*=0.006, D-W=2,059	OC_Cu	0,435	2,938	0,006	1	1

1.3 ORIENTATION CSF FACTORS AND CRM_RC

We will look at the factors of the CSF_ORIEN that can predict the CRM_RC. The Orientation CSF construct is composed by OC_Cu, OC_Co, and OC_Ic. A correlation matrix of those three items and the CRM_RC will show in a first time what factors are significantly correlated with the CRM Reciprocity and Capture. The summary of this correlation (presented below) shows that OC_Cu and OC_Ic are significantly correlated with CRM_RC.

TABLE 103 CORRELATION MATRIX CSF_ORIEN FACTORS AND CRM_RC

	CRM_RC	OC_Cu	OC_Co	OC_Ic
CRM_RC	1	0,502**	0,137	0,500**
****. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).**				

This correlation matrix leads us to only examine OC_Cu and OC_Ic. To start with the factors identification, we will proceed to a simple regression of CRM_RC on the two retained constructs of the CSF_ORIEN construct. This step will enable us to determine if the dimension (OC_Cu or OC_Ic) can independently predict the CRM_RC variable. And in a second step, we will perform a multiple regression with both dimensions to define which factor(s) can best predict the dependent variable CRM_RC.

TABLE 104 SIMPLE REGRESSION CRM_RC ON OC_CU

	OC_Cu					
CRM_RC	0,502**	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,252	12,463	0,001	3,530	2,364
****. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).**						

OC_Cu can explain 25.2% of the amount of variance in CRM_RC. The regression is statistically significant (F=12,463, $p<0.05$, and t>2).

TABLE 105 SIMPLE REGRESSION CRM_RC ON OC_IC

	OC_Ic					
CRM_RC	0,500**	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,250	12,315	0,001	3,509	1,821
****. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).**						

OC_Ic can explain 25% of the amount of variance in CRM_RC. The regression is statistically significant (F=12,315, $p<0.05$, and t>2).

The above two tables bring evidence that OC_Cu and OC_Ic can predict independently the variance in the dependent variable CRM_RC.

Using the Stepwise method for the multiple-regression, SPSS has produced one model that includes the OC_Cu variable.

TABLE 106 MULTIPLE REGRESSION OF CRM_RC ON CSF_ORIEN FACTORS

Model 1	Variables	Beta	t	Sig.	Tolerance	VIF
R=0,502, R^2=0,252, F=12,463, *p*=0.001, D-W=2,364	OC_Cu	0,502	3,530	0,001	1	1

The above results show that OC_Cu can better predict CRM_RC than OC_Ic. The regression results show also that the regression is statistically significant, and that CRM_RC

increases by 0,502 on average when the independent variable OC_Cu increases by one standard deviation while all other independent variables are held constant.

1.4 ORIENTATION CSF FACTORS AND CRM ANALYTICAL

We will overtake a multiple regression of CRM_Analytical on the three dimensions of the CSF_ORIEN (Customer Orientation, Competitor Orientation, and Inter-Functional Coordination) to identify what factor(s) can best predict the CRM_Analytical variable.

TABLE 107 MULTIPLE REGRESSION OF CRM_ANALYTICAL ON CSF_ORIEN FACTORS

Model 1	Variables	Beta	t	Sig.	Tolerance	VIF
R=0,474, R^2=0,225, F=10,717, *p*=0.002, D-W=1,717	OC_Ic	0,474	3,274	0,002	1	1

The results shown in the above table enable us to identify that OC_Ic (Inter-Functional Coordination) variable is the variable that can best predict independently the CRM_Analytical variable.

1.5 ORIENTATION CSF FACTORS AND CRM_IS

We will further investigate the relation between CSF_ORIEN and CRM_IS to identify what factor(s) of the CSF_ORIEN are correlated with CRM_IS and can predict its variance. For this aim, firstly we will perform a correlation analysis for the variables OC_Cu, OC_Co, OC_Ic, and CRM_IS. Secondly, we will execute a simple regression of CRM_IS on significantly correlated factor(s). And at last, we will perform a multiple-regression analysis of CRM_IS on those factors to identify the variable that independently can best predict the variable CRM_IS.

TABLE 108 CORRELATION MATRIX RESULTS OF CSF_ORIENT FACTORS AND CRM_IS

	CRM_IS	OC_Cu	OC_Co	OC_Ic
CRM_IS	1	0,297	0,285	0,370**
****. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).**				

The correlation matrix results show that only the OC_Ic display a significant correlation with CRM_IS, and can possibly predict its variance. We will now perform a simple-regression analysis of CRM_IS on OC_Ic.

TABLE 109 SIMPLE REGRESSION CRM_IS ON OC_IC

	OC_Ic					
CRM_IS	0,370**	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,137	5,862	0,020	2,421	1,769
****. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).**						

The above table shows that OC_Ic can explain 13.7% of the amount of variance in CRM_IS. F=5,862, $p<0.05$, and t>2, and therefore we can conclude that the regression is statistically significant, and that OC_Ic can independently predict CRM_IS. Since only OC_Ic is correlated with the CRM_IS, we can also conclude that it is the best predictor for the dependent variable CRM_IS.

1.6 ORIENTATION CSF FACTORS AND CRM OPERATIONAL

We will identify what factor(s) of the Orientation CSF can independently best predict the CRM_O variable.

TABLE 110 MULTIPLE REGRESSION OF CRM_O ON CSF_ORIEN FACTORS

Model 1	Variables	Beta	t	Sig.	Tolerance	VIF
R=0,714, R^2=0,510, F=37,538, *p*=0.000, D-W=1,778	OC_Ic	0,728	6,127	0,000	1	1

The multiple-regression analysis using the Stepwise method revealed that one model explains 51% of the amount of variance in the CRM Operational activity. This model includes the OC_Ic variable, and therefore we can conclude that OC_Ic is the best CSF_ORIEN predictor that can predict independently the CRM_O variable.

1.7 TECHNOLOGICAL CSF FACTORS AND CRM COLLABORATIVE

We will identify what factor(s) among Technological CSF can best predict the CRM Collaborative activity. We will perform a multiple-regression of the CRM_Collaborative variable on the three variables (EUS, Cons, and Vend) composing the Technological CSF construct.

TABLE 111 MULTIPLE REGRESSION OF CRM_COLLABORATIVE ON CSF_TECH FACTORS

Model 2	Variables	Beta	t	Sig.	Tolerance	VIF
R=699, R^2=0,489, F=16,275, *p*=0.000, D-W=2,318	EUS	0,498	3,489	0,001	0,737	1,356
	Vend	0,298	2,087	0,044	0,737	1,356

The performed multiple-regression reveals two models. Model1 includes EUS, whereas model2 includes the EUS and the Vend variables. Model2 shows that it can explain 48.9% of the amount of variance in the CRM_Collaborative while model1 accounts for 42.4% of the variance. The above table shows that the CRM_Collaborative variable can be best predicted by EUS and Vend variables.

1.8 TECHNOLOGICAL CSF FACTORS AND CRM_CC

TABLE 112 CORRELATION MATRIX OF CSF_TECH FACTORS AND CRM_CC

	CRM_CC	EUS	Cons	Vend
CRM_CC	1	0,488**	0,350*	0,382*
****. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).**				

The above table shows that all Technological CSF dimensions are significantly and positively correlated with the CRM_CC. A multiple-regression analysis will enable us to identify the predictor variables that make a significant contribution to the prediction.

TABLE 113 MULTIPLE REGRESSION OF CRM_CC ON CSF_TECH FACTORS

Model 1	Variables	Beta	t	Sig.	Tolerance	VIF
R=493, R^2=0,243, F=11,234, *p*=0.002, D-W=2,101	EUS	0,493	3,352	0,002	1	1

The above summary of the multiple-regression using the Stepwise method shows that EUS is the best predictor, among CSF_TECH factors, for the CRM_CC.

1.9 TECHNOLOGICAL CSF FACTORS AND CRM_RC

Similar to the earlier analysis, we will proceed to a correlation analysis and a regression analysis in order to identify the best predictor variables.

TABLE 114 CORRELATION MATRIX OF CSF_TECH FACTORS AND CRM_RC

	CRM_RC	EUS	Cons	Vend
CRM_RC	1	0,483**	0,278	,468**
****. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).**				

The correlation matrix summarized in the above table shows that only two dimensions (EUS and Vend) of the CSF_TECH construct are significantly correlated with the CRM_RC. In order to define the best predictor variables, we will proceed to a multiple-regression analysis of the dependent variable CRM_RC on independents variables EUS and Vend.

TABLE 115 MULTIPLE REGRESSION OF CRM_RC ON CSF_TECH FACTORS

Model 1	Variables	Beta	t	Sig.	Tolerance	VIF
R=497, R^2=0,247, F=11,510, *p*=0.002, D-W=2,406	EUS	0,497	3,393	0,002	1	1

The above results reveal that the best independent predictor variable, among CSF_TECH dimensions, to predict a variance in the dependent variable CRM_RC is EUS.

1.10 TECHNOLOGICAL CSF FACTORS AND CRM ANALYTICAL

In this section, we will identify the best predictor variables, among the CSF_TECH dimensions, to predict the dependent variable CRM_Analytical.

TABLE 116 MULTIPLE REGRESSION OF CRM_ANALYTICAL ON CSF_TECH FACTORS

Model 1	Variables	Beta	t	Sig.	Tolerance	VIF
R=553, R^2=0,306, F=15,433, *p*=0.000, D-W=1,965	EUS	0,553	3,928	0.000	1	1

The results shown in the above table prove that EUS is the best predictor, among CSF_TECH dimensions, for the CRM_Analytical variable. As we can see from the above table the model regression is statistically significant (F=15,433, p<0.001, and t>2). The results also show that the variable CRM_Analytical increases by 0,553 when EUS increases by one standard deviation and all other independent variables are held constant.

1.11 TECHNOLOGICAL CSF FACTORS AND CRM_IA

We will examine the relationship between the dimensions of the CSF_TECH and the CRM_IA. In order to do so, we will analyze the correlation matrix and the regression analysis.

TABLE 117 CORRELATION MATRIX OF CSF_TECH FACTORS AND CRM_IA

	CRM_IA	EUS	Cons	Vend
CRM_IA	1	0,395*	0,288	0,281
****. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).**				

The results presented above show that only the EUS variable displays a positive and significant correlation with CRM_IA. Therefore, we will test the relationship between EUS and CRM_IA to conclude if the independent variable EUS can reliably predict the dependent variable CRM_IA.

TABLE 118 SIMPLE REGRESSION OF CRM_IA ON EUS

	EUS					
CRM_IA	0,395*	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,156	6,675	0,014	2,584	2,288
****. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).**						

The above table shows that EUS can explain 15.6% of the amount of variance in the CRM_IA variable. We can also conclude based on the above results that the regression of CRM_IA on EUS is statistically significant (F=6,675, p<0.05, and t>2).

The results of the correlation matrix table and the simple regression table demonstrate that independently, the EUS is the only factor, among the CSF_TECH factors, that can reliably predict the CRM_IA.

1.12 TECHNOLOGICAL CSF FACTORS AND CRM_IS

CSF_TECH influences the CRM_IS, but as we know that CSF_TECH is composed by three dimensions: EUS, Cons, and Vend. Thus, we will proceed to examine whether all dimensions can independently predict the CRM_IS dependent variable.

TABLE 119 CORRELATION MATRIX OF CSF_TECH FACTORS AND CRM_IS

	CRM_IS	EUS	Cons	Vend
CRM_IS	1	0,488**	0,135	0,231
****. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).**				

The correlation analysis, summarized above, of the four variables (CRM_IS, EUS, Cons, and Vend) reveals that only EUS displays a positive and significant correlation with CRM_IS.

TABLE 120 SIMPLE REGRESSION IF CRM_IS ON EUS

	EUS					
CRM_IS	0,488**	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,238	11,249	0,002	3,354	1,859
****. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).**						

The simple regression analysis of CRM_IS on EUS results are presented in the table above. Those results show that 23.8% of the amount of variance in the dependent variable CRM_IS can be explained by the independent variable EUS. The above table and the correlation matrix results provide evidence that EUS can independently predict the CRM Information Sharing (CRM_IS).

1.13 TECHNOLOGICAL CSF FACTORS AND CRM OPERATIONAL

We will identify what factors of the CSF_TECH can independently best predict the dependent variable CRM_O. The CRM Operational activity is a one dimension construct, and consequently, we will proceed to the same analysis we made to previous dimensions (e.g. CRM_IS, CRM_RC).

Table 121 Correlation Matrix of CSF_TECH Factors and CRM_O

	CRM_O	EUS	Cons	Vend
CRM_O	1	0,676**	0,344*	0,272
****. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).**				

The above table shows the correlation matrix summary. As we can notice, independent variables EUS and Cons display a positive and significant correlation with CRM_O while Vend does not exhibit a significant correlation. According to these results, we will proceed to a simple-regression of CRM_O on EUS and a second one on Cons in order to identify whether both variables independently can predict a variance in the CRM_O variable.

Table 122 Simple Regression of CRM_O on EUS

	EUS					
CRM_O	0,676**	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,457	29,481	0,000	5,430	2,100
****. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).**						

The above table shows that the independent variable EUS can explain 45.7% of the amount of variance in the dependent variable CRM_O. The results of the regression show also that the regression is statistically significant (F=29,481, $p<0.001$, and $t>2$). Therefore, we can conclude that EUS can reliably predict the variable CRM_O.

Table 123 Simple Regression of CRM_O on Cons

	Cons					
CRM_O	0,344*	R^2	F (Fisher test)	*P* value (F)	t	D-W
		0,119	4,847	0,034	2,202	1,867
****. Correlation is significant at the 0.01 level (2-tailed). / *. Correlation is significant at the 0.05 level (2-tailed).**						

The above table shows that Cons can explain 11.9% of the amount of variance in the dependent variable CRM_O. We can also notice that the regression is statistically significant (F=4,847, p<0.05, and t>2) and conclude that the independent variable Cons can predict the dependent variable CRM_O.

The above discussions enable us to confirm that both independent variables EUS and Cons can reliably predict the dependent variable CRM_O. Consequently, we will perform a multiple-regression analysis to identify the best predictor variable for CRM_O.

Table 124 Multiple Regression of CRM_O on EUS and Cons

Model 1	Variables	Beta	t	Sig.	Tolerance	VIF
R=676, R^2=0,457, F=29,481, p=0.000, D-W=2,100	EUS	0,676	5,430	0.000	1	1

The results of the multiple-regression analysis using the Stepwise method reveal one model that includes only the EUS variable and which explains 45.7% of the amount of variance in the dependent variable CRM_O. Consequently, we can conclude that the variable EUS is the best predictor variable, among the CSF_TECH dimension, for the CRM_O.

2 THE CSF FACTORS AND THE PERCEIVED PERFORMANCE

2.1 ORGANIZATIONAL CSF FACTORS AND PERCEIVED PERFORMANCE

We will perform a multiple-regression analysis on the Perceived Performance and the factors structuring the CSF_ORGA in order to identify the best independent predictor variable for the Perceived_Performance dependent variable.

TABLE 125 MULTIPLE REGRESSION OF PERCEIVED_PERFORMANCE ON CSF_ORGA FACTORS

Model 1	Variables	Beta	t	Sig.	Tolerance	VIF
R=0,489, R^2=0,239, F=11,319, p=0.002, D-W=2,073	TMS	0,489	3,364	0,002	1	1

The above table shows that among the two dimensions of the CSF_ORGA (TMS and OS), the Top Management Support independently can directly and positively influence the Perceived Performance.

2.2 ORIENTATION CSF FACTORS AND PERCEIVED PERFORMANCE

Hereafter, we will identify what factors of the CSF_ORIEN construct can independently best predict the dependent variable Perceived_Performance.

TABLE 126 MULTIPLE REGRESSION OF PERCEIVED_PERFORMANCE ON CSF_ORIEN FACTORS

Model 1	Variables	Beta	t	Sig.	Tolerance	VIF
R=0,556, R^2=0,309, F=16,085, *p*=0.000, D-W=1,849	OC_Cu	0,556	4,011	0,000	1	1

The above results of the multiple-regression using the Stepwise method reveal one model. This model includes the OC_Cu variable among the three dimensions of the CSF_ORIEN construct (OC_Cu, OC_Co, and OC_Ic). This shows that the OC_Cu factor can is the best independent predictor to predict the dependent variable Perceived_Performance.

2.3 TECHNOLOGICAL CSF FACTORS AND PERCEIVED PERFORMANCE

The following table will indicate which factor(s) of the CSF_TECH dimensions is the best independent predictor for the Perceived_Performance variable.

TABLE 127 MULTIPLE REGRESSION PERCEIVED_PERFORMANCE ON CSF_TECH FACTORS

Model 1	Variables	Beta	t	Sig.	Tolerance	VIF
R=0,532, R^2=0,283, F=13,808, *p*=0.001, D-W=1,994	EUS	0,532	3,716	0,001	1	1

The preceding table shows that when performing the multiple-regression with the Stepwise method, SPSS has produced a model which includes only the EUS dimension of the CSF_TECH construct. Thus, we can say that the EUS independent variable is the best predictor variable (among the CSF_TECH construct dimensions) to explain and predict the dependent variable Perceived_Performance.

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