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MARMARA ÜNİVERSİTESİ
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İNGİLİZCE İŞLETME ANABİLİM DALI
YÖNETİM ORGANİZASYON BİLİM DALI

SUCCESSFUL CRM APPLICATION MODEL BUILDING IN TELECOM SECTOR

Yüksek Lisans Tezi

ÖZER KARAGÖL

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İstanbul, 2007

Marmara Üniversitesi
Sosyal Bilimler Enstitüsü Müdürlüğü

Tez Onay Belgesi

İŞLETME Anabilim Dalı YÖNETİM VE ORGANİZASYON(İNG) Bilim Dalı Yüksek Lisans öğrencisi ÖZER KARAGÖL nın SUCCESSFUL CRM APPLICATION MODEL BUILDING IN TELECOM SECTOR adlı tez çalışması ,Enstitümüz Yönetim Kurulunun 03.05.2007 tarih ve 2007-5/22 sayılı kararıyla oluşturulan jüri tarafından oybirliği/~~oyçokluğu~~ ile Yüksek Lisans Tezi olarak kabul edilmiştir.

	Öğretim Üyesi Adı Soyadı	İmzası
Tez Savunma Tarihi	: 29.6.1.2007	
1) Tez Danışmanı :	**PROF. DR. ŞULE IŞINSU ÖZMEN**	
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Keywords	: CRM, CRM Application, Telecommunications

ABSTRACT

The latest development in telecommunication technologies has drived telecom-based companies to give huge effort to keep their customers in hand. This study considered how to build a successful CRM application model in telecom sector. To mention this, it first gave an introduction about the study. Later on, it focused on the concepts and the architecture of CRM. In addition, this part of the study put the importance of CRM applications in businesses.

After giving conceptual information about CRM, the study considered common modules of CRM applications. The chapter also emphasized the role of each module. Later on, the study considered the telecom-based CRM application modules. Thus, it helped building a telecom-based CRM application module in Chapter 5.

Eventually, Chapter 6 explained the research methodology for the model generated in Chapter 5. Consequently, results of the research was evaluated and shared in the last chapter of the study.

GENEL BİLGİLER

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Tez Türü ve Tarihi	: Yüksek Lisans – Mayıs 2007
Anahtar Kelimeler	: CRM, CRM Uygulaması, Telekomünikasyon

ÖZET

Son yıllarda gelişmekte olan telekomünikasyon teknolojileri ile birlikte, bu alandaki firmaların müşterilerini elde tutmak ve yeni müşteriler kazanmak için yoğun çaba gösterdikleri görülmektedir. Bu çalışma ile, telekom sektöründe başarılı bir CRM uygulaması modeli geliştirilmesi anlatılmaya çalışılmıştır. Bunun için öncelikle, çalışma hakkında genel bir bilgi verilmiş olup, sonrasında ise CRM kavramı ve mimarisi üzerinde detaylı bilgilendirme yapılmıştır. Buna ek olarak çalışma CRM uygulamalarının işletmeler için önemi üzerinde durmuştur.

CRM hakkında kavramsal bilgi verildikten sonra, çalışma CRM uygulamalarının genel modülleri üzerine yoğunlaşmış ve her modülün rolü ayrıntılı olarak anlatılmıştır. Sonrasında ise, telekom sektörüne özgü modüller incelenmiş ve bu sayede 5. bölümde telekom sektörü için bir CRM uygulaması modeli oluşturulmuştur.

Bütün bunların sonucunda, 6. bölümde model için araştırma metodu anlatılmış ve modelin analizi yapılmıştır. Sonuc bölümde ise araştırma sonuçları değerlendirilmiş ve bulgular paylaşılmıştır.

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1. INTRODUCTION

CRM stands for Customer Relationship Management. It is a strategy to learn the general attitudes and attributes of the customers in order to develop stronger relationship with them. CRM is also a strategic process that helps companies to understand the needs of the customers. As an obvious result of this process, the companies can meet the customers' needs more efficiently and effectively. This strategic process may also drive customers to satisfaction. If companies can create satisfaction on their customers, they would have loyal customers. Unfortunately, having loyal customers are not as easy as described here. Companies must always give better services to their customers. Companies should always have strong communication with their customers. In other words, the management of relationship with customers must be perfect. At this point of view, communication link between customers and companies must be very fast, efficiently and effectively. This communication link can be accelerated with the help of information technologies.

Service is an important value offered to customers by the companies nowadays. The more quality service they support, the more valued customer they gain. Hence, the companies want to have more detailed information about their customers. By using this detailed information, they would create more customer-oriented products and services. Unfortunately, it is not so easy to make a study on the detailed information if it is not in the format that is held on any information technology platform. Because, information technologies enable companies to operate easier than before. The detailed information should also be convertible to the knowledge. In other words, it should be useful for companies to create new strategies.

Today's developing technologies help companies to manage their relationships with their customers easily. Internet, telephone, mail services, etc are very important channels in communication. If these channels can be used efficiently and effectively, both companies and customers will get profit from this communication. This point shows that a platform or a smart tool is needed while managing relationships between companies and customers. These tools are known as CRM Applications.

Many CRM-liked applications are used in the market. Not all the companies buy the package CRM programs but some companies develop their own CRM programs and integrate them to their existing structure or processes. They establish their own project team or outsource the project for the CRM program they need.

Having a CRM Application is not enough to reach success. CRM Application is a just tool that helps companies to create CRM strategies. These tools must be used very effectively and efficiently and they must be useful for the sector that the companies operate. Furthermore, CRM Application must meet the needs and business processes of the companies. If a company wants to create a CRM strategy, the tool that they choose must meet their needs. %60-%70 of CRM Applications can not reach success. This rate shows that there are some criteria in order to reach success in CRM Application and CRM strategies.

This thesis will consider how to build a successful CRM Application in Telecom Sector. The thesis will also mention the flow of the development steps in telecom-based CRM Applications. Thus, it will be described how to model the success of a CRM application for telecom sector.

2. CONCEPT & ARCHITECTURE OF CRM

In order to understand CRM Process and develop a CRM Application, the "CRM" term should be determined explicitly. CRM is a strategic process, which help companies to understand their customers better. This better understanding may drive companies to create new products or services that are more profitable for companies. So, companies give much importance to customer relationship-oriented strategies.

In order to understand CRM strategy, this chapter will concentrate on the "Concept of CRM" first. After defining the Concept of CRM, detailed information will be given about "Architecture of CRM". With the help of knowledge, which will be mentioned in "Architecture of CRM", the CRM application borders will be visible a little.

2.1 Concept of CRM

CRM helps companies to manage customer contacts in order to develop products and services by better understanding underlying behaviors of customers. CRM also provides direct immediate information to sales, marketing when needed to better serve to customers. According to underlying behaviors of customers, companies develop customer-oriented strategies. These strategies are known as CRM strategies.

CRM is also a business and marketing strategy that integrates process technology and all business activities around customers. Hence, companies can serve better to their customers. Companies must meet their customers' needs very fast, effectively and efficiently while applying CRM strategies. So having an application becomes must for companies that develop CRM strategies. However, CRM is not just an application. It is a business making strategy that gives great importance to customers. This must be understood very well. (Feinberg and others, 2002)

To have better understanding on Concept Of CRM, borders of "the basics of CRM" will be explained first, later on the evolution steps of CRM will be explored from past to today than future assumptions will be discovered in "The Evolution of CRM" part.

2.1.1 The Basics of CRM

The general purpose of CRM is to enable organizations to better manage their customers through the introduction of reliable systems, processes and procedures. Thus, companies can gain more revenue and profit. So, all CRM strategies are established according to needs of customers and to reach satisfaction on their eyes.

According to CRM Strategy, there is nothing important than a customer. If customers are satisfied, they buy more, they are more loyal and more profitable. If customers are not satisfied, they may drive company to lose revenue and profit. So, customer satisfaction is the key point for CRM strategies. (Ndubisi, 2007)

In order to gain more profit and revenue, CRM strategies locate costumers in the center of all business activities and processes. The main aim of CRM strategies is to satisfy customers more efficiently and effectively. While satisfying customers, CRM strategies should use information technologies. Because today's developing technologies has strong impact on customer satisfaction. (Xu and others, 2002)

In order to reach customer satisfaction CRM strategies should be design according to customers. Pantazopoulus says, "CRM is a business approach that integrates People, Processes and Technology to maximize the relations of an organization with all types of customers which includes end-customers, partners or suppliers". Pantazopoulos also emphasize that companies should consider CRM to reach success in today's competitive environment. (Pantazopoulos, 2006, p.1)

Competitive environment in each sector drives companies to create new customer-centric strategies. These strategies may be viewed in CRM models. Every CRM Model is established in the way to reach customer satisfaction. According to "CRM Model" of Chen and Popovich People, Process and Technology should be integrated as shown in Figure 1.

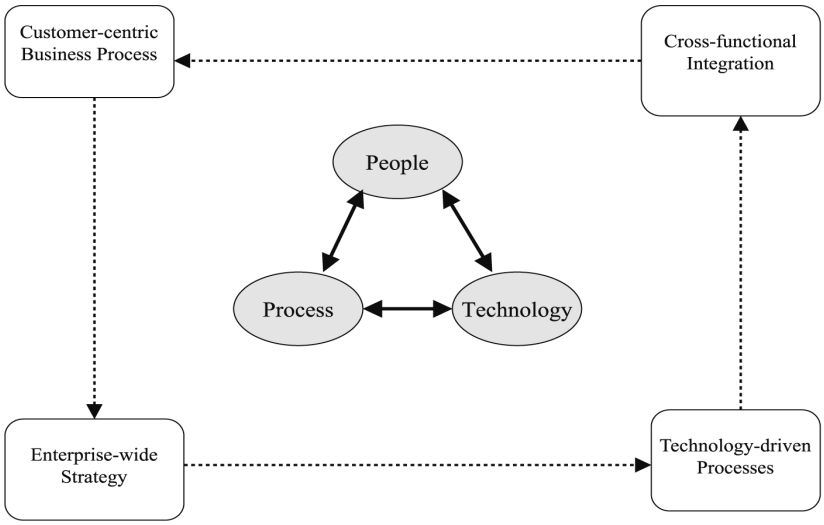

Figure 1: CRM Model. (Chen and Popovich, 2003, p.5)

"CRM Model" in Figure 1 highlights that CRM strategies must integrate People, Process and Technology. While integrating them, every strategy that CRM considers has to be Customer-centric. Hence Customer-centric Business Processes are established for reaching customer satisfaction. These processes also should be operated in companies' enterprise-wide strategies.

According to CRM Model of Chen and Popovich integration between people, customer and technology must be considered very well. Chen and Popovich also emphasize that Technology has great accelerator on applying strategies. This shows that CRM Applications have great power to reach customer satisfaction. But CRM is not just only a front office (marketing, sales, customer services) and a back office (accounting, production and logistic) application, but it is also a customer-centric relationship management philosophy that coordinates and collaborates all the other parts, customers and business partners together as explained above.

In CRM strategies defining behaviors and aims of the customers are another key point to reach success. Therefore, the proper customer should be defined in CRM Strategies. The customer set may include customers, employees, vendors, suppliers and even competitors and governments. The borders of this customer set are flexible and can be enlarged to increase relationship with the customers. (Bose, 2002)

Identifying the customers can be deficient if it just includes the current status of the customers, but also it must consider the past, habits, tendencies and behaviors of the customers. Hence, companies integrate Technology to their CRM strategies in order to identify their customers and needs of customers more efficiently and effectively.

After identifying needs of customers, companies develop strategies to meet these needs. This identification process recycles in each change of customer needs. So CRM is a strategic continuously improving process that helps companies to identify the needs, behaviors, attitudes of the customers in order to increase both customer satisfaction and revenues.

In order to reach success in CRM strategies, companies must improve their business processes continuously. It will be deficient to see CRM as a temporary tendency. Because the importance of CRM was realized in the past, recently it has been used while developing the new strategies and it will be improved and more specialized more in the future.

To reach success in CRM strategies companies must consider the developments in information technologies. Because, customers and potential customers can reach the required data easily over Internet. Because of developments in information technology, Internet supplies users (also customers) to reach various data immediately. Hence, the business making techniques change. A company at any location of the world can reach many potential and real customers located whole the world. This gives customers to make selection within the many companies to work with. With this concept, the companies must concentrate on the relationship with the customers on internet. Because of today's competitive environment, finding and keeping customers is more critical than ever. On the other hand, retaining customers is less costly than finding new ones. This shows that Internet and Technologies have great power in order to reach success in CRM strategies. (Kotorov, 2003)

Development of database management systems, internet and technologies has made CRM to be focused more by the companies in the recent years. Actually, CRM is

not a technology itself but the development in Information Technology made CRM to be integrated with the developing technology.

To automate the analysis and keeping contacts with the proper customer, an Information Technology Framework has become necessary to complete and apply the CRM project in the competitive environment. Therefore, a successful CRM strategy can not be created without any software program and database management system nowadays. Furthermore, the installation of CRM software will not be enough to have successful CRM strategy. So that CRM is a strategic process so that all the business flow processes, decision making processes and whatever that can be imagined must be related with the CRM strategy.

To summarize, "The Basics of CRM" is to reach success in customer relationship management strategies. In order to reach success in CRM strategies companies must satisfy customers. To satisfy customers companies have to create customer-centric strategies and these strategies must be established according to needs, behaviors and tendencies of customers. This brings companies to have an information technology in order to create their CRM strategies. Therefore, companies can reach success in their CRM strategies if and only if they have appropriate CRM Application.

2.1.2 The Evolution of CRM

Business making strategies has developed through time. The latest point has been achieved is that the customer-oriented strategies are used in business processes. These customer-oriented strategies are called CRM strategies. CRM is a marketing strategy that locates customers in the center of all business activities. Hence, in order to reach success in CRM strategies customers must be satisfied. Nevertheless, CRM is not created or developed in one day. CRM has some evolution steps. These sections will concentrate on the evolution steps of CRM.

CRM is a marketing strategy that helps companies to better understand the needs, expectations and behaviors of their customers. So in order to see the evolution steps of CRM, the marketing strategies that are used in the past must be studied.

Marketing strategies started with “Mass Marketing”. The main concern of “Mass Marketing” is to produce one type of product for all buyers. Thus, “Mass Marketing” is a product-oriented marketing strategy. According to Mass Marketing strategy, companies just wanted to sell as many products as possible to all buyers. To sell more, companies created short-time plans.

When companies discovered that one type of product was not enough to sell many products, they started to produce one type of product with various styles. This marketing strategy is called “Product-Variety Marketing”. “Product-Variety Marketing” is also product-oriented marketing strategy just like “Mass Marketing”. (Kotler, 1999, p.264)

“Product-Variety Marketing” was not enough for companies to sell more products. So they started to understand the power of customers in marketing. Hence they started to use “Target Marketing“. The main concern of “Target Marketing” is to group customers and sell products to these groups. Actually, “Target Marketing” is the cradle of CRM but it did not go far away. Nonetheless, “Target Marketing” was an important step in the evolution of CRM. (Dyché, 2002, p.17)

With CRM, the consumers rather than the producers and suppliers in the business world have owned the market orientation power. According to CRM perspectives there is nothing important than customers. So, CRM is customer-focused marketing and business strategy. Figure 2 shows the evolution steps of CRM that is mentioned above.

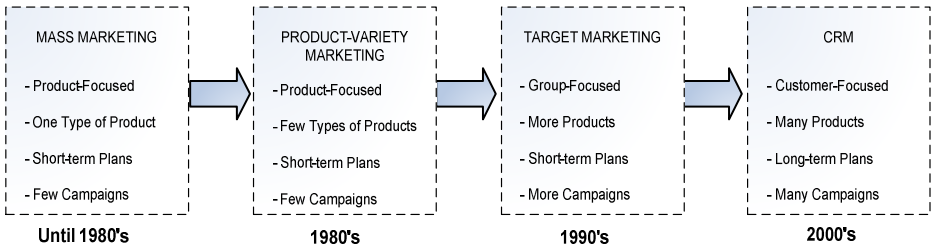

Figure 2: Evolution steps of CRM

Finally CRM has reached its maturity with the developments in marketing strategies as shown in Figure 2. In order to better understanding the evolution steps of CRM, each marketing strategy will be mentioned detailly in the following parts of this section.

2.1.2.1 Mass Marketing

The concern of Mass marketing strategy was to produce 'one type' or 'one style' of product for all buyers. The traditional argument for mass marketing is to minimize costs, prices and to create the largest potential market. (Kotler, 1999, p.264)

In order to sell more to buyers "Mass Marketing" was enabled effectively and efficiently through technological improvements in TV, radio, and the printed press, all of which created simple and powerful means to communicate a company's message to millions of people at once. Mass Marketing's major goal was to push product and create brand recognition. The main measure of success for this business strategy was market share. (Flanagan and Safdie, 1998, p.1)

Although the main concern of Mass marketing is to be market share, this strategy can not be used nowadays. Because Mass Marketing was product-focused and all the products were produced for all buyers. There were no segmented groups. In order to reach success in today's competitive environment, companies must consider customers and they should create their strategies in the perspective of customer needs, expectations and behaviors. These bottlenecks are solved in CRM very effectively and efficiently. So in order to reach success today, companies must consider their customers and create customer-oriented strategies. (Peppers and Rogers, 1995)

2.1.2.2 Product-Variety Marketing

In this marketing strategy, the companies produce several products with different styles. The traditional marketing argument for this type of marketing strategy is that customers have different choices and their choices change over time. (Kotler, 1999, p.264)

Actually, companies realized the power of customers in marketing with "Product-Variety Marketing". Therefore, they started to produce several products with various styles. Nevertheless, this marketing strategy did not go so much far away.

Although there are varieties of products, this strategy does not consider the segmentation of the customers. Just like mass marketing, product-variety marketing considers to sell all the products to all buyers. The only one difference between the mass marketing and product-variety marketing is the variety of the products.

Product-Variety Marketing can not be successful in today's competitive environment due to not giving any importance to customers. All sectors have been changing or developing according to the needs of customers. Hence, any marketing strategy, which does not consider the needs and expectations of customers, can not reach success. Therefore, companies do not prefer nowadays Product-Variety Marketing. The deficiencies in Product-Variety Marketing are solved in CRM. Because, according to CRM strategies there is nothing important than customers. In order to reach success today, companies must integrate their existing business activities according to the needs and expectations of customers. (Bose, 2002)

2.1.2.3 Target Marketing

In 1990's as consumers began purchasing more products, more data became available about them. Some companies realized that data could be valuable for them and the analysts began to associate the product and customer data so that to make segmentation. Thus the term "target marketing" was developed. (Dyché, 2002, p.21)

Target marketing recognized the need to interact with the customer more, but it did not go so much far away. Because there was a lack of specific data as the means of average standards. Nonetheless, target marketing was a significant step in the evaluation to today's CRM so that it moved the producer and consumer relationship one more step towards the personal interaction. (Flanagan and Safdie, 1998, p.7)

Target marketing could not reach success in the competitive environment. Because this strategy could not analyze the customer and product data effectively and

effectively. Furthermore, Target Marketing strategies are created for short-term plans. But in order to reach success in this competitive environment, companies must create continuously improving CRM strategies by focusing customers. So, Target Marketing strategies has evolve to CRM. Hence, CRM has become the best marketing strategy in today's competitive environment.

2.1.2.4 Customer Relationship Management

Target marketing is the cradle of Customer Relationship Marketing. CRM concept came out with the change from product related approach to customer related approach. Actually, "Target Marketing" forms the first steps of CRM. Customer is at the center of everything that includes management, technical operations, software, etc within the CRM.

From 2000's the "CRM, personalization, products or services for customers" concepts have been considered more. Actually, the customer satisfaction was the key point for the companies for many years. With the CRM concept, it is targeted to increase the customer satisfaction and relationship with the customers. (Ndubisi, 2007)

Customer relationship and management of these relationship, has been becoming more and more important in the competitive and global environment day by day. The required information can be retrieved easily with the development of internet and new technologies. The business making techniques are affected from this globalization. Costumers can gather any required products or services by the internet from anywhere of the world. At this point of view, the importance of competition and CRM Applications occurs. (Kotorov, 2003)

CRM is not just a SFA (Sales Force Automation) or a system that holds the customer data. It is also a business making philosophy to maximize profits of companies by focusing the needs, expectations and tendencies of customers.

By the development of new technologies and internet it became a must to make CRM. Because, there are many competitors in the market nowadays by the development of new technologies and internet. This brings companies the hardness of both "gaining

more customers" and "retaining the customers". At this point the more CRM the company applies to its customers, the more success it will have in this competitive environment.

2.1.2.5 Future of CRM

CRM will be more important for both companies and customers. CRM gurus say that CRM would exist in the future but it could not be applied to all companies with the same methods. The needs of the sectors will force CRM to be vertical rather than horizontal.

According to most of the companies, CRM will be more mobile, wireless and web-based. Because, the target is to reach to the customer any time and anywhere. CRM considers the needs, expectations of customers; this will also exist in the future. The companies, which care this rule, will have more chance in the competitive environment.

Internet is the most important communication channel nowadays. It will also have more importance in the future. People who use internet today will continue to use internet tomorrow more frequently. People who do not use internet today will start to use internet tomorrow. Thus, customers for all sectors especially for telecom sector will be using internet more frequently in the future. So, relationship management with customers will move over internet. So that CRM is a customer relationship management strategy, CRM will be operated in internet in the future. This type of CRM is called E-CRM (Electronic Customer Relationship Management). In the future companies must consider internet more careful and they must established their CRM strategies according to the developments in internet. (Feinberg and others, 2002)

As a result, it will be deficient to see the CRM as a temporary tendency. Because CRM is a management philosophy, which occurred in the past and is attracting more importance nowadays and will exist in the future.

2.1.3 CRM from Company, Customer and System Perspectives

From a company perspective, CRM is important to increase the profitability. This can be done by gaining new customers and retaining the existing customers. CRM

helps companies to measure the importance of their customers. So companies are giving so much importance to CRM. Some of the potential benefits of CRM are as follows. (Kim, Suh, Hwang, 2003)

- Increased customer retention and loyalty

- Higher customer profitability

- Creation value for the customer

- Customization of products and services

- Lower process, higher quality products and services

Main concern of CRM Strategies is to satisfy customers. If the customers are satisfied, they buy more and become more loyal. This loyalty may drive companies to increase their profits. CRM strategies should be improved continuously. Hence, companies want to reach success in their CRM strategies, they should always try to understand the needs, expectations and behaviors of their customers. Thus, companies should customize their products and services according to the expectations of the customers.

From a customer perspective, CRM term may not mean anything. They just want to be satisfied by companies. If they have satisfaction, they are more loyal to companies. Customers have realized that marketing power is on their hand, which means that they are more loyal to the companies, which make them satisfied more. Therefore, customers can describe CRM as 'better product and better service', although they may never have heard the word "CRM". (Gentle, 2002, p.46)

From a system perspective, CRM is an application, which supports sharing of data through all the internal modules and other external systems in order to reduce the costs. Furthermore, CRM provides companies to analyze their customers more effectively and efficiently with the help of developing information technologies.

To summarize, in order to reach success in competitive environment, companies must integrate CRM strategies into their business activities. In addition, they must use an appropriate CRM application to execute their own CRM strategies.

2.2 Architecture of CRM

In previous part of this section, the borders of "Concept of CRM" are drawn. In this drawing, "The Basics of CRM" is mentioned first, than the evolution steps of CRM are explored in detail. After identifying concept of CRM, this part will consider the architecture of CRM.

General properties of CRM applications are defined as "Architecture of CRM". But this architecture doesn't consider detailed implementation details of CRM applications. Nonetheless, common borders of CRM applications will be defined a little in this part. Implementation details and modules of CRM applications will be mentioned in the following chapters.

Widely accepted parts of CRM systems are Operational, Analytical and Collaborative CRM. Each part has different features. Main concern of Operational CRM is to support front-office business processes like sales, marketing and service. Hence, sales force automation can be operated in the company more effectively and efficiently. Analytical CRM is used to measure tendencies and behaviors of customers and to define new strategies. Furthermore, Analytical CRM provides useful data for Operational CRM. Collaborative CRM is used to communicate with customers, partners and other people. So it provides communication channel with customers and company. (Gebert and others, 2003).

Each part of "Architecture of CRM" is the complementary of others. In order to implement a successful CRM application, all these parts must be considered more efficiently and effectively. (Sohn and Lee, 2005)

To have better understanding on "Architecture of CRM", parts of architecture will be explored in detail. Hence, common modules of CRM applications will be visible a little.

2.2.1 Operational CRM

During the implementation of a CRM application, Operational CRM considers all the front office and back-office businesses like sales, marketing and service. While managing business processes Operational CRM uses the data, which is gathered from both Analytical and Collaborative CRM as shown in Figure 3.

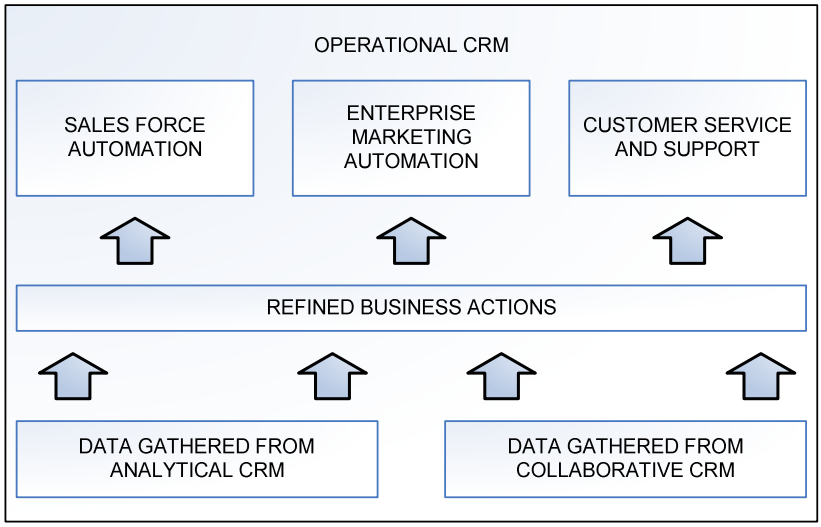

Figure 3: Illustration of Operational CRM.

As shown in Figure 3, Operational CRM uses the information, which is gathered from Analytical and Collaborative CRM. Thus, business strategies are established according to the needs, expectations and tendencies of customers, partners or other contacts. So, companies create or refine their business actions according to the findings about their customers, partners, etc. In this point of view CRM applications must have Operational, Analytical and Collaborative CRM modules in order to reach success. (Dyché, 2002, p.14)

Operational CRM has three characteristics in order to automate front-office and back-office business processes. One of them is SFA (Sales Force Automation) which helps companies to manage all sales activities of the company. The other part characteristic of Operational CRM is Customer Service and Support, which provides companies to manage customer problems about the services more efficiently and

effectively. In addition, the third characteristic of Operational CRM is Enterprise Marketing Automation, which helps companies to manage all marketing activities of the company (Xu and others, 2002).

To have better understanding on the characteristics of Operational CRM, each characteristic is discovered by the following.

Sales Force Automation (SFA)

In CRM systems customer, product, order, even partner and competitor information are all stored in a centric database with the help of SFA tools. This centric database is accessible to everyone who access to CRM system. Hence, each employee can reach detailed information about customers and sales activities of customers. (Gebert and others, 2003).

Sales activities may also be summarized according to regions, campaigns, etc. Therefore, SFA tools should also provide analyzing of data. At this point of view Analytical CRM modules must be integrated with Operational CRM.

SFA tools are designed to improve the performance of the sales activities better. These tools may also be enhanced with the tools of e-mail or internet access. It may also have interaction with customers through Collaborative CRM. So, Collaborative CRM may be integrated with Operational CRM. Thus, CRM systems will reach success more efficiently and effectively.

Customer Service and Support (CSS)

In CRM systems, measuring and monitoring services are provided with the help of CSS Tools. CSS tools automate some of the service requests, complaints and information requests of the customers. Call center applications and help desk applications can be classified as CSS. Some of the call center and help desk applications are totally integrated with the customer database. So when a customer calls for help, the staff in the organization can see the details of customer in depth.

Companies can manage their services more efficiently and effectively with the help of CSS tools. This also may drive company to have loyal customers. Because refining customer services directs customers to satisfaction. This satisfaction can also reach to loyalty. Finally, CRM systems may increase the profit of companies via CSS (Xu and others, 2002).

Enterprise Marketing Automation (EMA)

In CRM systems, all marketing activities are managed with the help of EMA tools. EMA automates general requirements for marketing that consists business environment threats and opportunities, campaign management and lead management. These tools are designed to improve the performance of the marketing activities better.

Companies can manage their products more efficiently and effectively with the help of EMA tools. These tools should be integrated with Analytical CRM. Because, in order to refine products, the analysis of customer satisfaction about the products of company must be gathered. At this point of view, Operational CRM must be integrated with Analytical and Collaborative CRM.

2.2.2 Analytical CRM

Analytical CRM considers managing and evaluating knowledge about customers for a better understanding on their behaviors, expectations and tendencies. To evaluate the customers, Analytical CRM uses the data, which is gathered from both Operational and Collaborative CRM as shown Figure 4.

Analytical CRM has a supporting role in Operational CRM. Because refined business actions are established with the help of analysis tools in Analytical CRM as shown in Figure 4. (Dyché, 2002, p.14)

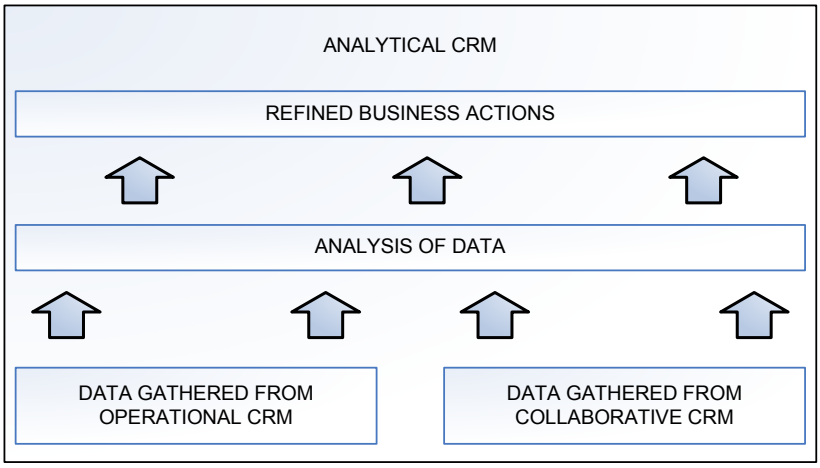

Figure 4: Illustration of Analytical CRM.

In Analytical CRM, the data recorded in Operational CRM is used to segment or classify customers. After segmentation or classification, the new campaigns and other profitable operations are executed in the operational CRM as seen in the figure above.

Analysis of Customer data may result with the campaign management, customer segmentation, pricing optimization, product development etc. At this point of view, it is absolutely realized that operational CRM and analytical CRM are complementary of themselves. To reach the success in CRM applications the information, which is gathering from Analytical CRM, should be considered more effectively and efficiently.

2.2.3 Collaborative CRM

Collaborative CRM supplies the interactions with the customers by using all communication channels that includes letter, e-mail, fax, web, phone, etc. In addition, it supports the coordination between the staff in the organization and customers. So at this point of view, it is a solution so that brings people, processes and data together to serve better and retain the customer. (Gebert and others, 2003).

Collaborative CRM integrates call centers enabling multi-channel personal customer interaction. Moreover, it enables web collaboration to reduce customer service costs.

Collaborative CRM has to be integrated with Operational CRM. Because all front office and back-office businesses processes are done according to the needs and expectations of customers. So in order to get success in CRM applications Collaborative CRM must be integrated with Operational CRM.

2.3 CRM Applications to Enhance Loyalty

CRM provides companies the better understanding of customers, suppliers or other contacts. This understanding directs companies to develop new products or services, which are more profitable. From this perspective, it is true to say that CRM strategies try to find out the needs of customers. If companies can find the real needs of customers, they may refine their processes accordingly which will lead them to have great competitive advantages in the market.

To discover these needs, CRM strategies have to be supported by CRM applications. So that companies can better analyze customers or contacts rapidly, efficiently and effectively with the help of today's developing technologies. These applications also help companies to manage their business processes easily. Furthermore, competitive environment also forces companies to operate faster then ever, otherwise they can lose both time and money. From this approach it is true to conclude that reaching success in CRM strategies depends on the abilities of CRM applications (Bose, 2002).

CRM applications help companies to refine their business processes more efficiently and effectively, because technology makes CRM applications more powerful. Companies can understand and evaluate tendencies of customers with the help of CRM applications. If the companies can use this findings in their business processes than the customers may have satisfaction. If customers become more satisfied, they will be more loyal and buy more. Therefore, CRM applications can help companies to enhance loyalty.

CRM applications provide loyal customers to the companies as explained above. Both the advisors and software engineers supply any required tools for this purpose. However, it is obvious that, the loyalty can not be reached only by using a

CRM application, because the real priority is the business making strategies in order to reach loyalty. (Kotorov, 2003)

It is not easy to retain loyal customers. Customers want to be satisfied all the time. Due to the development of technology and the internet, the competitors could easily support the same products. So, it is not possible to meet the needs of customers just using product-centric strategies. In order to satisfy the customers, strategies must be customer-centric as explained in previous chapters. Therefore, CRM applications can help companies to execute their customer-centric strategies. This also shows that CRM applications help companies to enhance loyalty. Nevertheless, the application is only a tool and gives acceleration. Nevertheless, it is not enough to depend on the application alone to reach the loyalty. In order to reach loyalty, companies must implement their CRM strategies with the help of CRM applications.

2.4 Critical Success Factors for CRM Applications

As explained before CRM is not just software, it is the way of making business. Along with CRM concept, increasing both customer loyalty and company effectiveness is targeted. In addition, CRM Applications help companies to apply CRM strategies to their own businesses. However, if the application does not meet the requirements of the company, then it is obvious that it will reach failure rather than success. So while implementing or deploying any CRM application, there are some critical success factors.

These critical success factors can be divided into a few steps as shown in Figure 5. (Real Simple Systems, 2006, p.2)

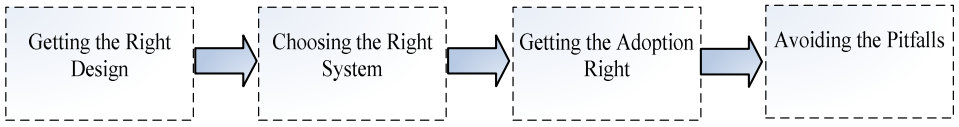

Figure 5: Critical success steps for CRM Application

As shown in Figure 5, while implementing a CRM application, design of the application is the first critical success step, which is faced. It refers to abilities, common

features of the application. Furthermore, it is related with the business requirements. More than one application may have the right design for the company. Therefore, the next step after getting the right design is choosing the right system. In this step, company decides which type of application should be used. Type of application may be web-based, desktop-based or client/server based. After choosing the system, adoption step starts. It is not easy to adopt to a new CRM system. This step considers how to make successful adoption for CRM application. The last of the critical success steps for CRM application is the pitfalls. This step concentrates on the critical issues to avoid pitfalls.

To have better understanding about critical success steps for CRM applications, each step will be discovered in detail as follows.

Getting the Right Design

Getting the right design is related to abilities and common features of the CRM application. If the application is designed and developed with the needs of business requirements than it will be the right design for the company.

Some of the business requirements may be as follows.

- To help sales people manage opportunities efficiently and effectively.
- To help sales people track all steps of the orders easily.
- To enable marketing staff simulating effectiveness of the products.
- To help technical staff operates their own duties.
- To enable anyone manage their own activities like tasks, e-mails etc.

These requirements are totally related to the design of the application.

At first, company must investigate its business requirements. Because, if the requirements are not clear, CRM application will reach failure (Bose, 2002).

To investigate requirements, meetings should be established with sales, technical and marketing staff. The most important people are sales people to reach success in CRM applications. Because both marketing and technical staff are familiar with the technology. Hence, they can easily adopt the application. Furthermore, they know which features the application should have. Nevertheless, sales people are different from them. They are not familiar with the technology. Hence, they may resist the change. From this point of view, success of CRM application depends on whether the sales people are convinced or not. So, while investigating business requirements sales people must be considered more than others must. (Real Simple Systems, 2006, p.4)

Getting the right design has great importance to reach success in CRM applications. Because of this reason, company must consider all the business requirements while designing the application. If the application does not meet some important business needs, than it will end with failure.

One of the most important issues for CRM application to reach success is to have system integration. If it does not implement system integration, it will drive staff to record same data multiple times. This will affect the performance of the staff. Hence, CRM application will lose its effectiveness and efficiency. From this point of view, system integration is very important for the success of CRM application (Bull, 2003).

To summarize, getting the right design has great importance to reach success in CRM application. Company must define its business requirements to make right design for the application. Therefore, before designing the system, all the requirements must be investigated detailly with the help of interviews with staff.

Choosing the Right System

After getting the right design, one or more CRM applications may meet the requirements. Company may also develop an in-house application. Choosing the right system considers which application should be preferred.

Type of application is important while choosing the right system. (Real Simple Systems, 2006, p.5) Type of application may be web-based, desktop-based or client/server based. Each of the application types has advantages and disadvantages. Comparison of these application types is shown in Table 1.

	DESKTOP	WEB	CLIENT/SERVER
Company wide view of data	NO	YES	YES
Speed	FAST	DEPENDS ON INTERNET CONNECTION SPEED	DEPENDS ON NETWORK SPEED
Application Access	IF APPLICATION IS ON COMPUTER	IF YOU HAVE INTERNET CONNECTION	IF YOU HAVE CONNECTION TO OFFICE
Support and Back Up	USER SUPPORTED	SUPLIER SUPPORTED	IT STAFF SUPPORTED

Table 1: Comparison of Application Types.

As shown in Table 1, in Web-based and Client/Server-based applications data can be viewed by anyone in the company but not in desktop-based. Nonetheless, desktop applications are faster. The speed of both Web and Client/server applications depend on the connection speed.

Table 1 also highlights the difference between each application types based on application access and support. Web and Client/server applications have advantage while accessing. Because today's developing technologies made it easy for the companies to use applications over internet. So, desktop applications can not reach success of other CRM applications. Support of Web and Client/server applications are given by the suppliers of the applications. Hence, this table highlights that web or client/server applications must be chosen in order to reach success in CRM applications.

In some conditions web and client/server can be used both. Because CRM application is an enterprise application. It may have different modules and sub-programs. System must be evaluated according to the advantages and disadvantages of each application type while choosing the right one.

With the development of Intranet and Internet technologies, it became possible to access the CRM system from PDAs and mobile phones. With the expansion of CRM applications to PDAs, companies improved their performance more effectively and efficiently (Kotorov, 2003). This show that CRM applications will be improved with today's developing technology. From this point of view, application may be any kind of type, but it must provide company to accelerate business processes.

Getting the Adoption Right

After choosing the right system, the company starts to use CRM application. If the staff is not adopted to the application, it will end with failure. This part considers how the adoption should be made.

In adoption stage, staff satisfaction is very important for reaching success. Because, if staff is not satisfied with the application, they will not consider whether it is successful or not. Furthermore, they will not give any feedback for the application. Hence, the application will not be improved any more. This will lead the application to end with failure (Real Simple Systems, 2006, p.6).

In order to accelerate adoption, another important thing is the support of senior managers. Support of senior managers will lead employees to adopt to CRM application rapidly, efficiently and effectively. According to Kotorov, the degree of the employee adoption to CRM application depends on the degree of the support of senior managers. The more support senior managers give the system, the more adopted the employees will get (Kotorov, 2003).

Another important thing in adoption of CRM application is training programs (Osarenkhoe and Bennani, 2007). These training programs not only help employees to understand the goal of CRM but also to show how the application helps to manage business requirements. Thus, it improves the adoption to CRM application (Bose, 2002).

To summarize, adopting to a new system is not easy. In order to accelerate adoption support of senior managers and training programs are very efficient and

effective. From this point of view, all the employees in the company should be kept anxious and be encouraged to use the system.

Avoiding the Pitfalls

Implementing and deploying CRM application is not enough to reach success. Because if the application is not used, than it is obvious that it will end with failure as explained in "Getting the adoption right" step.

To adopt employees, support of senior managers and training programs are required. Nevertheless, adoption is not enough to reach success. (Osarenkhoe and Bennani, 2007). Any negative effects may drive the CRM strategy and the application into failure; hence, the strategy must be very carefully applied on the all stages of the application. This part explains what pitfalls are and how to avoid them.

Each step of critical success factors may have pitfalls. In "Getting the right design" step, one of the most important pitfalls is to try to design a perfect system. Because complexity will move away from the real goal of CRM application. From this point of view, the application must be designed as simple as possible at startup.

Another important pitfall is to put employees under too much pressure. Instead of pressure, they must be convinced that the application will solve lots of the problems they face. They must be encouraged and motivated to use the system. In order to achieve this, training programs must be established (Bose, 2002).

Lack of cultural preparation is another pitfall to reach success in CRM applications. First, CRM application helps companies to operate their own CRM strategies. From this point of view, if company does not operate with the customer-oriented strategies, the application will fail. Because of this company must have customer-oriented strategies before using CRM application (Xu and others, 2002).

Lack of network infrastructure is also pitfall to reach success in CRM applications. If the application can not be operated efficiently and effectively in the infrastructure, than the application will lose its effectiveness. This will lead CRM application into failure.

To summarize, avoiding pitfalls are very important to reach success in CRM applications. CRM strategy is continuously improved business strategies, which means that the application must be improved along with it. From this point of view, the application life cycle never ends.

3. MODULES OF CRM APPLICATIONS

After 1990's, the companies realized that the more customer related information they gather, the more advantages they will have in the competitive environment. Therefore, companies started to use SFA tools. SFA is the cradle of CRM systems. This means common modules of CRM applications were developed from SFA modules. Nevertheless, SFA modules are not enough to understand the behavior of customers. Therefore, CRM applications must include some modules, which help companies to analyze customer data more efficiently and effectively. Hence, companies can create customer-oriented strategies better.

CRM applications have some modules related to sales, marketing and etc. These modules may be extended according to the business workflows, the business cultures and the needs of the company. From this point of view, the priorities and the needs of the companies are important to reach success in CRM applications.

This chapter will concentrate on the common modules of CRM applications. These modules are System Management, Time Management, Sales Management, Marketing Management, Lead Management and Report Management. In order to realize the benefits of these modules, each will be explained in detail. Hence, success factors for CRM applications will be better visible.

3.1 System Management

This module provides company to manage both the organization chart and the CRM System. It is an administrator tool for companies to better manage the CRM application.

To manage CRM application, administrators of the system can record organizational divisions like users, departments, teams, managers and etc. Hence, the organization chart is defined into to the system (Bose, 2002).

CRM application has some modules in order to operate the CRM strategies of the company. But not all the employees have access to all the modules. To manage the

access rights of the employees for the CRM application, System Management module provides administrators to define the roles and the rights of each role. Hence, this will provide employees to see only the parts they have permission to.

Defining organization chart and roles for the system is mandatory. If the application has no system management tool, it will end with failure. Because, all the effectiveness reports of employees and customers uses the data, which is recorded by this module. From this point of view System Management tool is very important to reach success in CRM applications.

3.2 Time Management

This module provides company to manage the schedule and the calendar information of a single user or a group of users. Thus, the user of the CRM System can easily assign any activity to any date. These assigned activities may include tasks, e-mails, appointments and etc.

Assigning activities to specific users or groups helps them to remember when to do certain activities. Therefore, jobs and duties can be managed easily.

The activity records include title, description, date, time and all information related to them (Dyché, 2002, p.80). This helps companies to analyze each activity efficiently and effectively. So they can improve their processes better.

Time Management is very important in success of CRM applications. Because with the help of this module, employees can manage their schedules easily. Hence, they can manage their relationships with the customers better than ever. From this point of view, Time Management directly affects the success of CRM applications (http://www.microsoft.com/turkiye/dynamics/products/crm_satis.mspx).

Time Management module can also be integrated with an application like Microsoft Office(TM). With the help of integration, users can manage their activities from both CRM application and Microsoft Office(TM). Therefore, they will have very flexible usage for the CRM application. This may lead CRM application to reach success.

3.3 Sales Management

Sales Management Module implements functions of pre-sales support, order management, invoicing and after-sales support. With the help of Sales Management Module, company can manage sales operations easily.

Sales Management module is closely integrated with the company's online services like e-commerce. Hence, company can manage online products. Many sales modules from CRM vendors offer online store as a part of CRM Systems. Hence, they can manage their online capabilities more efficiently and effectively. (http://www.sysoptima.com/crm/crm_modules.php, 2005, 1)

Sales Management Modules can be divided into two parts. First one is related to pre-sales operations of the company whereas the other is related with post-sales operations. In order to have better understanding each part will be explored in detail.

3.3.1 Sales Process & Activity Management

Sales Process & Activity Management module considers the pre-sales operations of the company. Each company has its own sales process and sometimes may have multiple processes for each product type. These processes are established with the needs of the company. A common sales process can be established as shown in Figure 6.

Figure 6: Sample Sales Process.

As shown in Figure 6, sales process starts with the opportunity. In this step, company decides the products and the services they will sell. After opportunity generation, Lead Allocation step starts. In Lead Allocation step, company tries to find out the potential customers. Then it offers quote for their needs in Quote Ofference step. If the potential customers accept the quote than contract is signed. Quote ofference may

also be revised according to the needs of the potential customers. After signing contract, products or services are delivered to the customer (Dyché, 2002, p.82).

This sample sales process may change according to the needs of the company. Therefore, CRM Application must have configuration parameters for sales processes. If the application has no configuration, parameters or tools for sales processes than it will lose the effectiveness and efficiency. Hence, CRM application will end with failure (Wikström, 2004).

In each step of the sales process, CRM system generates the activities, which is related to sales. After generated, these activities are assigned to appropriate users. Therefore, the users can easily monitor the status, history and operations done in any sales process. Hence, employees can capture the status of sales processes. Thus, communication with customers is improved with the help of this module. From this point of view, sales process and activity management module directly affects the success of the CRM application.

In CRM applications, even the reminders can warn the sales staff just like sales process and activity management. But reminders doesn't include any sales information, so it is not an effective way to use reminders in sales processes.

As summary, sales process can give more information to the sales people, but it may also result with failure unless the processes are customized properly according to the needs of the companies. Therefore, the processes should be designed and customized carefully.

3.3.2 Sales & Territory Management

This module helps company to categorize the contacts and the customers. This leads company to analyze its customers territorially. According to Dyché Sales & Territory Management Module should give the answers of the following questions. (Dyché, 2002, p.83)

- Which sales person has been assigned for the Customer X?

- Which customers are located in Territory X?

- What is the total sales revenue of Territory X?

More questions of this kind may also be generated with the help of sales management tools. So, better relationships with the customers may be established. From this point of view, the power of Sales & Territory Management module affects the success of CRM applications (Ndubisi, 2007).

To summarize, Sales & Territory Management module helps company to segment its customers. Hence, company can generate more customer-oriented strategies. This shows that this module has great impact to reach success in CRM applications.

3.4 Customer & Contact Management

Customer and Contact Management module is the core of CRM applications. This module helps company to manage all the information about the customers and the contacts. From this point of view, this module must be designed carefully in order to reach success in CRM applications.

Customer and Contact Management module helps company to record both the identity and address information of the customers and the contacts. Therefore, company can answer the following questions with the help of this module. (Dyché, 2002, p.84)

- What is the phone number of Customer “X”?

- What are the billing and official addresses of Customer “X”?

- Which contacts do Customer “X” has?

- Which technical staffs Customer “X” have?

These kinds of critical questions can easily be answered by looking the details of both customers and contacts.

Customer and Contact Management module is closely integrated with the other modules of CRM application. Thus, company can manage orders, activities, etc with the help of this module. This leads company to manage all the details of the customers efficiently and effectively (Goldberg, 2002, p.9)

This module may also be accessible to the customers and contacts over the internet. Hence, customers can manage their addresses and the identity information. They may also request some changes in the services they use. This leads company to establish better relationship with them. From this point of view, Customer and Contact Management module has great impact to reach success in CRM applications.

3.5 Lead Management

Lead Management module helps company to manage potential customers. These potential customers are the ones who may be real customers in the future. Therefore, company can have new customers with the help of Lead Management Module (Dyché, 2002, p.84).

This module provides sales staff to record potential customers to a certain time. The record may also include the aims of them, the products they interest and the competitors they work with. When the certain time is arrived, CRM system reminds sales staff for the potential customer. Therefore, sales staff never forgets to communicate with the potential customers. This leads company to gain new customers. From this point of view Lead Management module is very important to reach success in CRM applications (Gebert and others, 2003).

Not all the potential customers can be real customers but also they may end with failure. This module gives the opportunity to record failure reasons. This leads company to analyze failure reasons of potential customers. Hence, company can improve its business processes more efficiently and effectively. From this point of view, this module is very important to reach success in CRM applications.

3.6 Marketing Management

Marketing Management module helps company to manage marketing operations. These operations include managing products, services, prices, promotions, campaigns, etc. All the results of these operations are used in Sales Management module. From this point of view, Marketing Management module supplies preliminary data to Sales Management module.

Marketing Management module also helps company to manage the online services and products. Hence, customers can see and buy the products of the company over the internet. This leads company to be more flexible and powerful in the competitive environment. From this point of view, Marketing Management module is very important to reach success in CRM applications (Bull, 2003).

This module can also be integrated with analysis reports. Hence, marketing staff can segment customers according to some criteria more efficiently and effectively. This leads company to generate new promotions and campaigns easily. This shows that Marketing Management module must be integrated with analysis reports in order to reach success in CRM applications (http://www.sysoptima.com/crm/crm_modules.php, 2005, 1).

3.7 Report Management

Report Management module helps company to analyze customers, products, sales, processes, etc. To achieve this it has many reports related to them. Employees can use these reports in order to evaluate performance of the company.

All the modules, which are mentioned before, are used to record and view the operational part of CRM. Nevertheless, Report Management module is the analytical part of CRM. This means that, this module helps company to analyze its current structures. Furthermore, company can create new strategies with the help of Report Management module. From this point of view, Collins says that “success of Report Management module depends on the degree of its integration with other modules” (Collins, 2001, p.1).

Report Management module can also be accessible over the internet. Hence, employees or managers can easily monitor the status of the company. Therefore, they can penetrate new strategies rapidly. From this point of view, online access of Report Management module is very important to reach success in CRM applications (Kotorov, 2003).

Reporting management module can be supported by the help of third party tools like “Crystal Reports”, “Reporting Services”. By using these tools the sales people, managers or any one can access reports more effectively and efficiently.

4. REQUIREMENTS OF TELECOM SECTOR WITH CRM PERSPECTIVES

In previous chapter, the common modules are considered in CRM applications. Each sector requires specific modules, services or requirements. In order to manage these needs, CRM applications has to be customized according to the needs of sectors.

Telecommunications is networking between people to stay in contact. Telecommunication services include conversation media such as voice, video and text. The telephony, videoconferencing, voice mail, instant messaging and electronic mail are achieved with the help of those conversation media. (Bond and others, 2004)

Telecom sector is very dynamic sector because of developments in the internet and the technology. In order to operate well and healthy in this dynamic competitive environment, telecom companies should adapt themselves according to the needs of the sector and they should manage customer relationships in more attention (Tromp and others, 2006). At this point of view, this chapter will concentrate on the modules of CRM applications in telecom sector. In addition to common modules of CRM applications, this chapter will explore Technical, Sales and Reporting modules of telecom-based CRM applications. Each module will be explored in detail in order to better understanding of the requirements of the telecom sector.

4.1 Technical Management Modules

Telecom sector requires too much complicated technical operations. Therefore, keeping the operations done before becomes impossible to remember after a while. Technical Management Modules help technical staff to manage their own business activities in depth.

Technical Management Modules should have integration with external system. Each module must integrate with the required external system. Thus, detailed information about the external systems can be gathered from CRM application easily. This is an important power of integrated CRM applications.

Technical Management Modules include Ticket Management, Hosting & Monitoring, Network Services Management, Dial-Up & VPop Management, Care Lists and Watchman Lists modules. In order to understand better each module will be explored in detail.

4.1.1 Ticket Management

Ticket Management Module helps staff to manage tickets opened both from the internal and the external environment of the company. Thus, it provides communication between departments, customers or contacts.

Ticket Management can be used both internal and external. For internal purpose, it is useful for communication between departments. For external purpose, it supplies interaction with the customers.

Most of the Ticket Management Modules are accessible for customers or contacts over the internet. Customers can compose their problems, requests, complaints, etc. Later on, the CRM system generates a ticket for the request and then ticket is directed to the appropriate staff in the company. Furthermore, customers, contacts or staff can view all the steps of the ticket. This capability provides real-time interaction between company and customers.

This module is not only used by technical staff, but also it is useful for other departments like sales and marketing. Because the ticket may be related to sales or other departments. At this point of view, to automize the ticket flow, each ticket should include which department or product group it is related.

Ticket Management Module is also useful for Call Centers. With the help of this module Call Center staff can easily see the details of the customers.

Data generated from Ticket Management Module is very useful while creating analysis reports of customers, products or staff. With the help of analysis tools, the evaluated results may drive company to change or regulate its operations. From this point of view, it is necessary to include a Call Center solution for CRM applications. (Jun, Yang and Kim, 2003)

The role of Call Center staff is increasing with CRM Systems. With the advantages of CRM systems, customer service representatives can make real-time analysis about the customers or products customers use or need. This brings great competitive advantage in the telecom sector. So, Ticket Management module is very important in order to reach success in telecom-based CRM applications (Bannan, 2003).

4.1.2 Hosting & Monitoring

Hosting & Monitoring is a service supported by telecom companies for their customers. This service supplies companies to host their servers using the framework of the telecom companies. Servers may owned by either customers or company.

Hosting & Monitoring Module helps technical staff to manage the servers located in data centers. Thus, the company may easily get the number of the servers hosted in its own data center. Furthermore, with the help of this module, the technical staff may be warned whenever a problem occurs for each server. From this point of view, this module is very important for customer satisfaction (Wang and Lo, 2002).

This module should be integrated with the external system that helps telecom companies to support server services for their customers. Hence, the required monitoring operations on the servers owned by both Telecom Company and customers may be operated easily. This shows that integration is very important to reach success in telecom-based CRM applications.

4.1.3 Network Services Management

Development of network and internet technologies has drived customers to set up customized networks over the internet. Furthermore, owning defined bandwidths has become possible. Therefore, telecom companies has started to supply their customers network services with different type of technologies. These technologies can be Lease Line, SDSL, Wireless Line, Optical Line, etc. Network Service Management Module provides Telecom Company to manage the internet backbone of the customers. (Chandrashekhar and others. 2002)

Nowadays telecom companies supply VOIP (Voice over IP) services to their customers. With VOIP services, customers of telecom companies can make telephone calls over the internet. Hence, customers pay less money for phone communication. With the help of Network Service Management module, network staff can create accounts for VOIP services easily.

VOIP operations in CRM application should also be integrated with the framework of the external system that manages voice services. Hence, technical staff can manage and trace the voice operations in the network through using CRM system. At this point of integration has great impact for the success of this module (Collins, 2001, p.1).

Network Services Management module should be integrated with the external system for each network service which telecom company supplies. Although there are lots of low level network management tools but they can not be used efficiently due to limits of these tools when compared to any CRM application. With the integrated Network Services Module, network staff can easily manage all the lease lines, sdsls, wireless lines, optical lines, etc. From this point of view, Network Management Module is important to reach success in telecom-based CRM applications.

4.1.4 Dial-Up & Vpop Management

Development of internet technologies brings customers to connect internet. Dial-Up services is one of first services that telecom companies supplied. However, nowadays it is not being used very frequently.

Dial-Up and V-pop is a form of internet access through a modem connected to a computer and telephone line connected to dial into telecom company's modem (http://en.wikipedia.org/wiki/Dial-up_access, 2006). Thus, customers can connect to the internet.

With the help of Dial-up & Vpop Management module, the staff can manage the dial-up or vpop accounts. Furthermore, integration between CRM system and dial-up system supplies Telecom Company to map the accounts in dial-up system to

customers or contacts in CRM system. Hence, the analysis reports can be used to analyze the status of the customers according to dial-up service. This shows that integration is very important to reach success in this module.

4.1.5 Care Lists

All the technical devices like generators, air-conditioners, servers need to be controlled periodically. Sometimes it is hard to remember caring of devices due to other overloaded duties. Care Lists module helps technical staff to manage care operations on the devices. It also gives opportunity to record the historical operations. Hence, the latest operations on the technical devices can be viewed when needed.

A telecom-based CRM application should have the capability to manage the periodical care list and also it should warn the related staff about the care operation. However, the activity management module can also manage the operations done, but Care Lists module has more detailed information to use in the future. Hence, using Care Lists Module for technical devices would be more effective rather than activity management module. At the analysis report of these technical devices, Care Lists Module data can be used. This provides Telecom Company to take some critical positions in future. This forecast would give opportunity to make regulations about devices before. From this point of view, Care Lists module is important to reach success in telecom-based CRM applications.

4.1.6 Watchman Lists

Shifting has become necessary in service companies which gives 7/24 support to their customers. Telecom companies must have shifts so that their customers want to be online or keep in touch all the time. This is because most of the customers of telecom companies are connected to their own consumers or partners over the internet. If the communication link were broken with their consumers, they would be affected very negatively. Thus, shifting becomes very important in telecom companies.

Shifting in telecom companies is available for some departments like technical or call-center. In order to manage the employees efficiently, CRM application should

help to record the detailed information about watchmen. Shifting is managed with the help of Watchman Lists Module in telecom-based CRM application.

Recording shift information in the CRM application provides input for critical reports about call-centers. Furthermore, when a customer has contacted with call-center, CRM application automatically saves the speech and computer-actions of the employees. Thus, when a problem occurs in the future, company can easily get the information about the conversation. To support shifting, this module is very important in CRM application. Hence, telecom company can reach success better then ever.

4.2 Sales/Marketing Management

Sales/Marketing Management module helps sales and marketing staff to manage their own activities. This module is generally related with the front office operations like sales process, stock, reseller or marketing activities, etc. Therefore, Sales/Marketing Management Module provides input for analysis reports of customers, stocks, products and contacts (Jungic and Gospic, 2003).

Every company has it own sales process. If this module is not customized according to the needs of the company, it may drive the CRM strategy into failure. Therefore, companies that live in telecom sector want Sales/Marketing Management Module to meet their own needs, otherwise it would be useless. Hence, Sales/Marketing Management Module is customized according to the needs of telecom sector like other modules in CRM application.

Sales/Marketing Management module is the kernel of the CRM application. The success of the CRM application can be evaluated with the success of this module. Because, this module is totally related about the business needs of the company.

Sales/Marketing Management Module include some sub-modules Quote, Contract, Order Management, Workflow Management, Stock Management, etc. In order to have better understanding on Sales/Marketing Management modules, each module will be explored in detail. Hence, success of CRM application in telecom sector will be evaluated better then ever.

4.2.1 Quote, Contract, Order Management

A sales process starts with quote. Firstly, quote is offered to the customers for their acceptance. Quote ofference step may drive sales representative to revise the quote again and again due to customer's exceptions. If both the company and the potential customer agree on the quote, the contract is done in the next step of the sales process. Later on, service that is sold is established (Dyché, 2002, p.82).

Sales representatives or technical staff may be included more than one sales process in any moment. Hence, it is hard to remember the operations that should be done. Therefore, CRM application helps sales and technical teams to manage their own sales processes' activities easily. From this point of view, this module is important to reach success in sales process.

Recording all the detailed information about sales process provides data for complex reports. These reports supplies company better understanding on customers, and on the performances of their activities. Hence, company can improve business strategies. This shows that this module is important to reach success in telecom-based CRM applications.

4.2.2 Workflow Management

Workflow Management Module is totally integrated with sales process and technical modules. This module helps communication and interaction between sales, marketing and technical staff. Because of this Workflow Management module works with Activity Management Module to help interaction between departments.

A workflow may contain more than one-step. These steps include activities that should be done. When a step is required, the activities related with this step are generated by the CRM application. Hence, the staff can easily know what jobs should be done for the products or the services in sales process. (Thomas, 2002)

In general, each product or service group has customized workflow processes. Because, each product may require different processes. With the help of CRM application, these processes can be managed easily.

Workflows of products or services may be generated either for per product or for per order item. Hence, flow of each item in a sales process can be monitored effectively and efficiently. From this point of view, Workflow Management Module is very important for the success of CRM applications.

Workflow Management Module also helps company to measure its performance. This performance measurement can be done by analyzing the workflows generated. Hence, company can see the lacks of the processes, departments and people. From this point of view, this module is important to improve processes better than ever. This shows that this module is important to reach success in CRM applications.

Workflow Management Module must be well customized according to needs of the company. Otherwise, it would be extra work for the staff, than the performance of the departments may fall down. Therefore, this module has great importance in Sales/Marketing Management module.

4.2.3 Stock Management

Telecom company can sell both software and hardware just like products or services. Therefore, this brings telecom company to have a management module of he stocks. Stock Management Module provides company to manage both the software and the hardware stock.

With the help of Stock Management Module, company can also manage mapping between the license numbers of sold software, hardware and customers or contacts. Hence, when any problem occurs with the hardware or the software, company can trace the historical background of it. This leads company to manage stock effectively and efficiently. Stock Management Module should also be integrated with the orders. Thus, the order items can be linked with license numbers.

This module provides detailed information to the stock analysis reports. Hence, the stock flow performance can be measured very effectively and efficiently. From this point of view, Stock Management module is important to reach success in telecom-based CRM applications.

4.2.4 Reseller & Partnership & Provisioner Management

Resellers are the people or companies that sell the products or services of telecom companies. This module helps Reseller Manager to manage resellers. With the help of this module, Reseller Manager can record detailed information about resellers. Thus, the valued-resellers can be identified easily (Jungic and Gospic, 2003).

Reseller information can contain contact information, demographic status, and level of reseller or any other detail about resellers. These information provide data for reseller related analysis reports. Hence, company can segment the resellers and then it can make some new campaigns for them.

Partnership and Provisioner Management module help company to manage partners and provisioner just like Reseller Management does. Hence, the company can measure the performances of partners and provisioners. From this point of view these modules help company to make better communication with partners, resellers and provisioners. Therefore, these modules are important to reach success in CRM application.

4.2.5 Domain Name Management

Internet is a network, which includes too many computers, routers and etc. In order to access the sites which is located in computers, visitors must know the ip addresses of the computers. This complexity can not be handled unless the computers has meaningful addresses. Because of this, each ip should have a meaningful address. Thus, Domain Name specifies the internet address of a web site.

With the help of Domain Name Management Module, company can record domain names of the customers rapidly, efficiently and effectively. Hence, telecom company can manage the domain names of the customers.

Domain names must be renewed before the end of renewal date. Domain Name Management also helps to renew the domain names before due date. Therefore, staff never forget to renew any domain. From this point of view, this module is important to reach success in telecom-based CRM applications.

This module also provides to record the documents about domain registration. Hence, some of the domain registrations can be done automatically. This leads company to improve effectiveness and efficiency.

Domain Name Management module also provides data for server analysis and risks. It helps company to monitor traffic of each site, computer, etc. Therefore, company can evaluate the performances of computers. From this point of view, this module is very important to reach success in telecom-based CRM applications.

4.2.6 Content & Template Management

Telecom companies have some document templates for their contracts, quotes, etc. Content & Template Management Module helps company to prepare these document templates. Therefore, standard document formats can be used in written papers.

Content & Template Management is commonly used by marketing staff. Marketing staff prepares any required document templates for any type of papers. Those prepared document formats are used in quote management, order management, etc. Hence, sales staff can easily create documents without considering the formats of them. This improves both the staff and the company performance better than ever.

This module also must be integrated with sales modules. Hence, sales documents can be created automatically. This leads company to manage and track these documents with the help of CRM application. From this point of view, Content & Template Management module is very important to reach success in telecom-based CRM applications.

4.2.7 Bulk Messages & Announcements

Bulk Messages Module is used for e-mail marketing strategy. With the help of analysis reports, costumers and contacts may be segmented according to products or services. Than, they might be aware of new products or services using Bulk Messages Module. From this point of view, this module is very important in telecom-based CRM applications. (Walton and Anderson, 2001)

Bulk Messages Module helps marketing or sales staff to specific e-mail to segmented groups. These e-mails may be standard or customized according to customer or contact information. At this point of view, Bulk Messages Module can be integrated with Template Management Module.

Announcement Module provides company to announce some new or upgraded news in its own web site. Hence, the latest information can be obtained from the company website by the costumers. Therefore, Announcement Module has importance in telecom-based CRM application as if Bulk Messages Module has.

4.2.8 Marketing Management

Marketing Management Module helps marketing staff to manage marketing operations like products and campaign management, advertising planning, outsourced projects management, etc.

The most important role of Marketing Management Module is to help recording new or existing products, services or campaigns. These defined services, products or campaigns are the preliminary data for Sales Management Module. Prices are also controlled by marketing management module. So this module has huge importance in Sales modules. From this point of view, Marketing Management is very important to reach success in CRM applications.

Marketing Management Module may also get information from analysis reports when new campaigns or services required. Once the segmentation groups are defined according to some customer-related strategies, Marketing Management Module uses those segmented groups data in order to make new campaign planning. This process may drive company to gain more success in the competitive environment (Flanagan and Safdie, 1998, p.19). Hence, the performance of the company can be improved better than ever. This shows that Marketing Management module is very important in order to reach success in telecom-based CRM applications.

Marketing Management module also helps telecom companies to manage online products or services. This leads company to be more powerful in the competitive

environment. From this point of view, Marketing Management module is very important to reach success in CRM applications (Bull, 2003).

4.3 Report Management

Telecom companies want to analyze the tendencies of customers and performances of the each department and overall company. At this point of view, Report Management module helps company to generate specific reports according to some customized data.

Reports may be generated from both existing and estimating data. Existing data may be gathered from sales, marketing, technical management modules. The user who wants to generate reports may also provide estimating data. Therefore, according to the analysis of the reports generated, new strategies or action plans may be taken into consideration. As a result, Report Management Module has too much importance in telecom-based CRM applications.

Although many of the report types are sales-oriented in order to measure the overall performance of the company, but also staff-oriented reports may be useful to capture the performance of the company. Furthermore, giving attention on staff performances may be resulted with success in customer-eyes. Because, customers always want to be served as good as possible. From this point of view, staff-oriented reports are very important in telecom-based CRM applications.

Technical-oriented reports are also usefully while measuring the performances of the products or the services. These types of reports may show the most defective products. Thus, company can improve those products better then ever.

As seen, Report Management is the analytical part of CRM systems. Data is not much useful if it is not analyzed better. Therefore, Report Management Module is very powerful tool for CRM applications in telecom sector.

Although Operational CRM uses data according to the findings that is gather form Analytical CRM, not enough attention is given to Analytical CRM modules in lots of telecom-based CRM applications. If the required attention were given to Analytical

CRM, the outcome would increase the success of Operational CRM. (Xu and Walton, 2005) This shows that Report Management module is very important in success of telecom-based CRM applications.

4.3.1 Simulation

Simulation reports are generally used for future estimations. With the help of Simulation Reports, the average-revenue about specific products or services may be estimated according to the changes in prices of them. For example, company can measure the average-revenue about a product group when company increases the price for %10 percent.

Simulation reports may help company in decision-making process. These may include ending a product or starting a new one. These simulation reports can be successful only if the report considers the customers' behavior.

Simulation reports may also be used for process development for order, quote or sales processes. Process simulation may drive company to improve their own existing sales processes or to develop new sales processes. Hence, simulation reports about process improvement supply company to accurate the handicaps in sales processes they operate with. (Adebanjo, 2006) This shows that simulation reports are very useful in telecom-based CRM applications.

4.3.2 Valued-Customer

Development in internet technologies drived telecom companies to act very carefully in the competitive environment. Because, telecom companies provide services related with internet technologies. As a result of this point, they started to struggle keeping existing customers at their hand. This approached bring telecom companies to find and keep the valued-customers.

Valued-Customer Report provides company to find the more valued customers. The "Value" term is not only related with money the customers pay. The valued-customer is the important customer that provides company saving more money, keeping

the company improved and having loyalty for the company, etc (Kim, Suh and Hwang, 2003) .

Valued-Customer Report considers sales, tickets, suggestions or other important issues tracked by the customers. Thus, it shows common important customers in brief with the help of data recorded by other modules before.

Valued-Customer Report also helps company to segment or classify the customers according to some criteria. Thus, some target segments may be campaigned, awared, etc. Therefore, these customers may stay in contact more than before. This approach may also improve the loyalty. From this perspective, Valued-Customer Report is an important tool in telecom-based CRM applications.

4.3.3 Product & Campaign Based Reports

Product & Campaign Based Reports help company to measure overall performance of the products or campaigns. Thus, company can easily get if the product is succeeded or not.

As described in Ticket Management Module, customers can open tickets about the products or services they use. At this point of view, considering Ticket Management Module data in Product & Campaign Based Reports, gives company the opportunity to see the issues on the specific services. Thus, the service or product may be improved as a whole. This shows that Product & Campaign Based Reports are very effective tools in telecom-based CRM applications.

Product & Campaign Based Reports also helps sales staff to evaluate the quotes or orders. Because these types of reports provide company to see which quotes are ended with success or which are not. Thus, management staff of the company can see which products in the quotes resulted as order by using this module. This measurement can also give some ideas about the products or service. Therefore, company can improve its products or services. Furthermore, these reports can give idea about the performances of sales staff. From this point of view, Product & Campaign Based Reports are very important in telecom-based CRM applications.

4.3.4 Financial Reports

Financial Reports help telecom companies to generate lots of financial reports including sales, revenue, expense, etc. With the help of Financial Reports in telecom-based CRM applications, company can evaluate overall performance of the company rapidly, efficiently and effectively.

With the help of Financial Reports, telecom companies can see the revenues or expenses of a specific product or product group. Furthermore, company can evaluate the total revenues gathered or expenses spent in defined intervals. Thus, company takes some new assumptions or strategies into consideration (Alexander and others, 2000). This shows that Financial Reports in telecom-based CRM applications are very useful for managers.

4.4 Integration with the Existing Applications

Services which telecom companies supply are expanding in any moment of time because of development in internet and information technology. To serve any service, telecom companies need to make investment for related technological background. For example for server services, new data center or data center servers may be required. However, the services which telecom companies supply hold daily growing information at different level, locations even databases in the organization. Furthermore, these devices provide specific data for telecom companies' usage. Unfortunately, distributed data is not useful when it is not consolidated in a centralized database. Telecom companies give much importance to consolidate each service they provide in a centric database in order to make analysis about customers. This consolidation is called as integration. (Jungic and Gospic, 2003)

CRM applications keeps the data in an centric-location. Thus, the data can be measured easily in more detail. Therefore, keeping data in a centric-location becomes vital for telecom companies for their analysis reports. Therefore, CRM applications should be integrated with each service telecom companies provide. Furthermore, Integration phase must be planned very carefully.

Integration should be considered from beginning of project cycle for the CRM application and the application should be established with the information about the existing external systems. Hence, the integration jobs will be easier and successful to implement.

Unfortunately, a study, which is made at Brunel University, showed that CRM Developers/Vendors are not investing enough effort on Integration. (Missi & Alshawi & Fitzgerald, 2005) Furthermore, this may drive the CRM strategy into failure.

CRM applications target to hold the data in centric-location so that to make analysis very quickly and more accurate. From this point of view, Integration with Existing applications is very important to reach success in telecom-based CRM applications.

5. MOVING FROM DESIGN TO IMPLEMENTATION

In previous chapters, the common modules for CRM Applications and specific modules for telecom sector of CRM Applications are mentioned. According to the findings in the previous chapters, this chapter will consider the design and implementation details of a telecom-based CRM application.

As first, this chapter will mention designing theoretical framework and later on it will concentrate on each step of the flow named “from design to implementation”.

5.1 Design Theoretical Framework

Capturing all the business needs and required modules provides how to design a theoretical framework in a telecom-based CRM application. According to all modules that explained in detail in previous chapters, the following architectural framework may be established for CRM application for telecom-based companies.

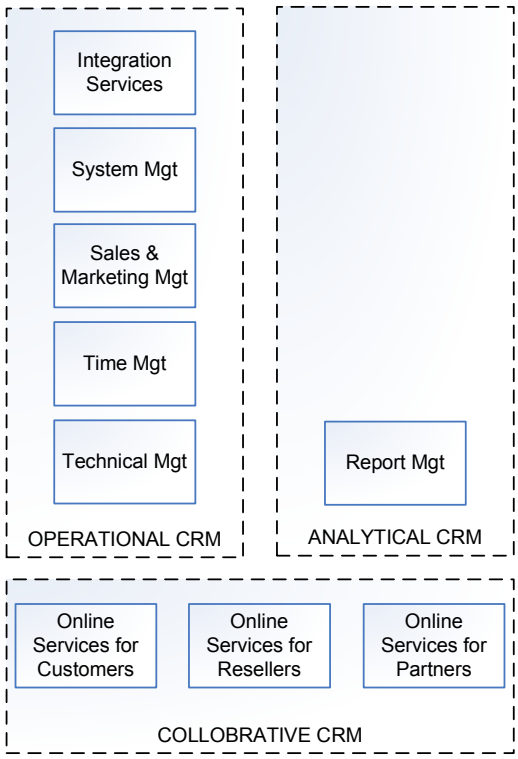

Figure 7: Architectural Framework for CRM Applications for Telecom Sector.

Figure 7 shows both the common CRM architecture and specific modules of telecom-based CRM applications. Each component of the framework is related with others. Hence, the data flow between modules can be established more rapidly, effectively and efficiently.

In addition to architectural framework, the following model shows both the success factors of telecom-based CRM applications and the relationship between these factors. These factors are extracted from the architectural framework of telecom-based CRM applications. From this point of view, the research will measure this model in the following chapter.

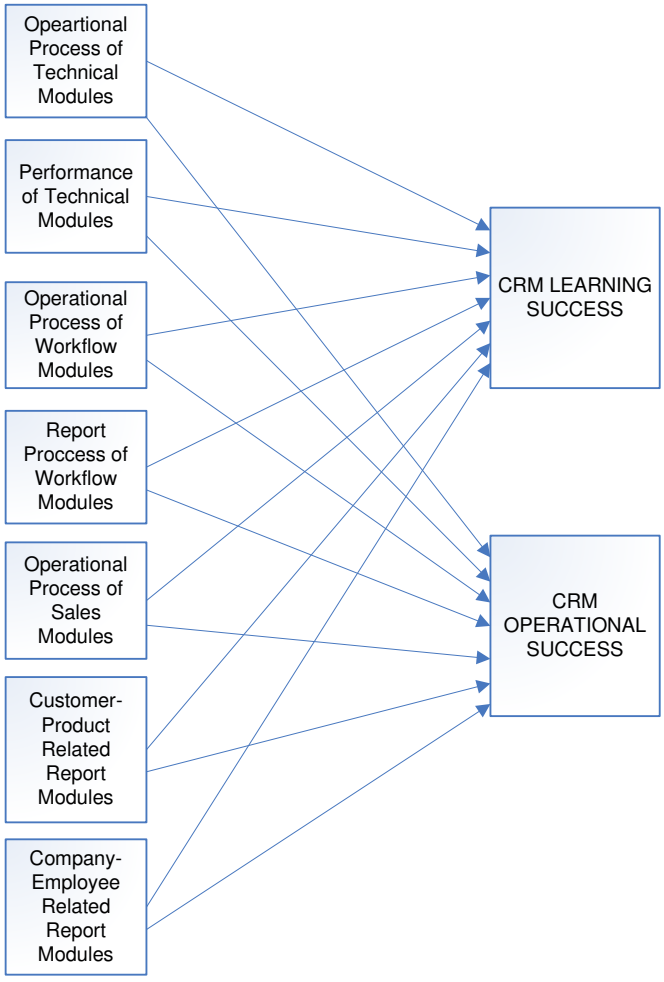

Figure 8: Conceptual Model of CRM Applications for Telecom Sector.

5.2 Application Model Development

After designing the theoretical framework, Application Model Development phase considers the general properties of the application and user interface designs. In addition, standards for integration and interaction with external systems are determined in this phase.

User-interface has much importance for CRM Applications. Whenever the screens are simplified, users can use the systems easily. Therefore, the efficiency and effectiveness of the CRM application increases. Hence, expected performance results from both the CRM application and CRM users will be reached quickly. Therefore, this step will provide the company to reach its goals easier than before (Ahn, Kim, Han, 2003).

Application Model is designed according to defined system requirements in previous chapters and specific needs of the users. Modifications will not take so much time in application model so that it is a prototype.

In Application Model Development phase, the application implementation details should not be investigated very deeply. Hence, the flow for the application will be controlled and there will be no deviation from the expected goal. On the other hand, some of the application components may be designed and implemented for usage so that this phase is the base for the real application implementation. Therefore, the user experience oriented problems will be minimized in the real application implementation phase.

There is no database operation in Application Model Development phase. So there should be some ready data to test this phase. To do this, XML (Extensible Markup Language) files are very useful. Therefore, sensible data will lead users to understand and interpret the system easily while navigating the screens.

5.3 Testing Application Model

After completing Application Model Development phase, the next step is the testing of this model. This test includes both the abilities of the screens and business

functionality flows. Therefore, both the application bugs and lacks for business requirements are investigated.

During Application Model Development and Testing, developed Application Model must be frequently tested with users. In addition, users should be frequently involved in these phases by doing usability tests. Hence, CRM application will be able meet the needs of business better then ever (Schierholz, Kolbe, Brenner, 2006, p.8).

At the end of Application Model test, the system may not cover the business needs. Therefore, the Application Model Development phase is reviewed and revised according to the findings in business requirements of the company.

If the Application Model meets the business requirements of the company, the next step, which is called "Real Application Implementation", is executed.

5.4 Real Application Implementation

If "Real Application Implementation" is the next step to be executed, this shows that the general user interfaces are completed, business needs are defined and the standards are created (Jungic and Gospic, 2003). From this point, the real implementation for prototype is started to be implemented.

While implementing the framework of the application, a centric database should be established. Thus, all the records and data will be consolidated and analysis reports will be generated easily by using this centric database.

5.5 Testing Application

The next step is "Testing Application", after the real application implementation phase. Tester teams are assigned and the CRM application is started to be tested for all directions in this step. This test includes checking the abilities of the screens, business functional needs and data consistency. Therefore, the system is tested whether it meets the needs of the company or not.

At the end of test results, some issues that are not considered during the Application Model Development phase may be discovered. At this time, the changes for the needs should be analyzed. If the system implementation does not require too much changes, and the business needs may easily be adapted, then there should be a return-back to the "Real Application Implementation" phase. On the other hand, if the system implementation requires too much changes and the model do not have enough ability for the meets, than there should be a return-back to "Application Model Development" phase. The changes are done at appropriate phases, and then the outputs are tested again (Jungic and Gospic, 2003).

Tests are continued until the CRM application reaches the maturity level. CRM application is not taken into live until success is not gathered from tests. Because, any CRM application which has not reached the maturity level may drive company into loss rather than profit. This is another point while making change process.

At the end of test results, if the system reaches the maturity level, CRM application is taken into live. Although the system is alive, there will always be some new requirements because of the changes in needs and the developments in the technologies. Hence, the modifications will also be covered in the system. This process never ends for the firms, which improve and adapt themselves according to the needs.

5.6 Feedbacks and Corrective Actions

After taking the system into live, users start to use the system very quickly. In addition to this, there may be get some feedbacks. These feedbacks may both include bugs in the application and the advices for efficiency and effectiveness of the system for company or users.

Each received feedback should be analyzed in depth. At this point of view, if it is seen that the feedback drives improving the performance of the system and users, then the feedback should be implemented in the CRM application. Therefore, the CRM application will always stay in fresh for the company.

Some feedbacks may get because of the lankness of the user about the CRM application. At this point of view, there should be arranged some training programs for the users in order to both improve the performance of the users and adapt them into the CRM application. As a result, owning the CRM application by users will supply both the company and the CRM application to stay alive.

6. RESEARCH METHODOLOGY

In previous chapters, CRM concept, common modules of CRM applications and the specific modules of telecom-based CRM applications were mentioned. Eventually, a conceptual model was established according to the findings in the chapters that were mentioned before.

This chapter will consider the research about the study. It will first mention the purpose of the research. Later on, Data Collection, Sampling and Measurement will be explored in detail. Eventually, it will mention the analysis and the findings about the research.

6.1 Purpose of the Research

Purpose of this study is to measure success factors of telecom-based CRM applications. To measure them, literature was reviewed in detail. Later on, according to the findings in the literature review, a conceptual CRM application model was established for telecom sector. The research will analyze this model. At this point of view, the research was developed to state the following issues.

- To measure the success factors of CRM applications in telecom sector.
- To find out the roles of each factor in success of CRM applications in telecom sector.
- To determine whether the success of CRM Operational Process depends on the success of Operational Process of Technical Modules or not.
- To find out the role of Report Process of Workflow Management Module in success of CRM Operational.
- To determine whether the success of CRM Learning Process depends on the Performance of Technical modules or not.

These issues will be explored and analyzed in detail in the following parts.

6.2 Data Collection, Sampling and Measurement

In the research, the successful CRM model for telecom sector was measured. To measure this, online questionnaire was used to collect data. The questionaire was hosted in the web site whose address is www.ozerkaragol.com.

Nominal and interval scales are used in the questionnaire. Nominal scale is used on the demographic and other grouping variables. In addition to this, interval scale with five levels ranging from "Very Important" (5) to "Not Important at all" (1) is used to measure perceptions, attitudes and intentions in success factors of telecom-based CRM applications.

There were 46 questions in the questionnaire. The first four were demographic questions in which the respondents were asked to provide details about their CRM application-based demographic features. Others were all about to measure the success factors of telecom-based CRM applications. These questions were grouped in the questionnaire according to the related modules as shown in Table 2.

MEASUREMENT FOR SUCCESS FACTORS OF	GROUP NO	QUESTIONS
CRM APPLICATION	5	BETWEEN 5 AND 14
TECHNICAL MODULES	6	BETWEEN 15 AND 25
WORKFLOW MODULES	7	BETWEEN 26 AND 32
SALES MODULES	8	BETWEEN 33 AND 40
REPORT MODULES	9	BETWEEN 41 AND 46

Table 2: Groups in Questionnaire.

Judgment sampling is used in the research. Judgment sampling is a non-probability sampling method in which a researcher selects the sample based on an appropriate characteristic of the sample members.

Data is collected from technical and sales employees of telecom companies. They were received through e-mail and the author's co-workers. Data was first inserted into Microsoft SQL Server$^{(TM)}$ database with the help of the internet site, which hosts the questionnaire. After that, unuseful data was eliminated from database. Eventually,

the data was important into SPSS (Statistical Package for Social Sciences). Sample descriptions and frequencies of the demographic features of respondents are given in the tables below.

DEPARTMENT	FREQUENCY	PERCENT
SALES/MARKETING	31	30,4
TECHNICAL	71	69,6

Table 3: Department Distribution.

CRM APPLICATION	FREQUENCY	PERCENT
IN-HOUSE	44	43,1
MICROSOFT CRM	12	11,8
EMPTOR CRM	32	31,4
SIEBEL CRM	1	1,0
OTHER	13	12,7

Table 4: CRM Application Distribution.

CRM APPLICATION USAGE	FREQUENCY	PERCENT
LESS THAN 1 YEAR	35	34,3
1-2 YEARS	21	20,6
2-3 YEARS	16	15,7
3-4 YEARS	12	11,8
MORE THAN 4 YEARS	18	17,6

Table 5: CRM Application Usage Distribution

CRM Application Usage variable is recoded into a new variable. Recoded variable has three scales. These are, less then 1 year, 1-3 years and more than 3 years. Hence, One-way Analysis of Variance (ANOVA) can be measured better.

CRM APPLICATION TRAINING	FREQUENCY	PERCENT
YES	62	60,8
NO	40	39,2

Table 6: CRM Application Training Distribution

6.3 Analysis

Factor Analysis is a statistical approach that is used to analyze interrelations among a large number of variables and to explain these variables in terms of their common underlying dimensions or factors.

Factor Analysis is performed for grouping the variables under basic dimensions. Some of the variables, which are not meaningfully identified under any factor, are removed. Table 7 shows the variables measured and the question numbers corresponding to the measurement of each variable.

VARIABLES	QUESTIONS
CRM OPERATIONAL PROCESS	5.1 – 5.2 – 5.4 – 5.5 – 5.6 5.7 – 5.8 – 5.9
CRM LEARNING PROCESS	5.3 – 5.10
OPERATIONAL PROCESS OF TECHNICAL MODULES	6.6 – 6.7 – 6.9 – 6.11
PERFORMANCE OF TECHNICAL MODULES	6.1 – 6.2 – 6.4
OPERATIONAL PROCESS OF WORKFLOW MODULES	7.1 – 7.2 – 7.3 – 7.4 – 7.5
REPORT PROCESS OF WORKFLOW MODULES	7.6 – 7.7
OPERATIONAL PROCESS OF SALES MODULES	8.1 – 8.2 – 8.3 – 8.4 8.5 – 8.6 – 8.7 – 8.8
CUSTOMER-PRODUCT RELATED REPORT MODULES	9.1 – 9.2 – 9.3 – 9.4
COMPANY-EMPLOYEE RELATED REPORT MODULES	9.5 – 9.6

Table 7: Variables and Questions

Each of the variables is analyzed with Reliability Analysis to investigate whether they are reliable or not.

Linear regression and correlational analysis are performed to find out the interdependencies between the variables.

Comparative Analysis of attributes based on demographics and other grouping variables are conducted by using Independent Sample T tests and Analysis of Variance (ANOVA).

6.4 Findings

In this part, findings of the research are considered in three headings. Each one will be explained in detail in the following headings.

Factor Analysis and Reliability Analysis Results

As mentioned before, after the literature review of the research, modules of telecom-based CRM applications stand out with the dimensions as shown in Table 7. In order to measure these dimensions, 42 questions are prepared. These questions are answered to the sample of 102 employees of telecom companies.

Factor analysis is performed for 42 questions representing the dimensions in order to analyze interrelations among these dimensions. The questions representing CRM application success are not included in this analysis.

Each group of the questions is analyzed separately. The questions, which are having lower factor loading values, are extracted from the analysis results. Following a number of iterations, the result is revealed in tables as follows.

	FACTOR LOADING	VARIANCE EXPLAINED	CRONBACH ALPHA	NO OF ITEMS
FACTOR 1. OPERATIONAL PROCESS OF TECHNICAL MODULES		36,637 %	0,818	4
Automatic warning mechanism	,820			
Direction in screens	,791			
integration with external systems	,782			
Managing services easily	,683			
FACTOR 2. PERFORMANCE OF TECHNICAL MODULES		31,743 %	0,806	3
Putting services into operation quickly	,890			
Putting services into operation automatically	876			
User-friendly screens	,657			
TOTAL VARIANCE EXPLAINED		68,381 %		

Table 8: Factor Analysis and Reliability Analysis for Technical Modules

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		,787
Bartlett's Test of Sphericity	**Approx. Chi-Square**	293,739
	Df	21
	Sig.	,000

Table 9: Kaiser-Meyer-Olkin and Bartlett's Test Results for Technical Modules

	FACTOR LOADING	VARIANCE EXPLAINED	CRONBACH ALPHA	NO OF ITEMS
FACTOR 3. OPERATIONAL PROCESS OF WORKFLOW MODULES		40,277 %	0,820	5
Documents must be filled by the flows	,788			
Reaching service documents easily	,749			
Defining documents for flows	,730			
Defining customized flows for services	,724			
Better communication between technical and sales departments	,682			
FACTOR 4. REPORT PROCESS OF WORKFLOW MODULES		26,483 %	0,851	2
Reporting bugs in reports	,901			
Reporting delays in flows	,898			
TOTAL VARIANCE EXPLAINED		66, 759 %		

Table 10: Factor Analysis and Reliability Analysis for Workflow Modules

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		,746
Bartlett's Test of Sphericity	**Approx. Chi-Square**	286,574
	Df	21
	Sig.	,000

Table 11: Kaiser-Meyer-Olkin and Bartlett's Test Results for Workflow Modules.

	FACTOR LOADING	VARIANCE EXPLAINED	CRONBACH ALPHA	NO OF ITEMS
FACTOR 5. OPERATIONAL PROCESS OF SALES MODULES		54,189	0,877	8
Starting operation process of services after sales	,783			
Direction in screens	,780			
Managing services easily	,772			
Customized sales process for services	,762			
Automatic warning mechanism	,748			
User-friendly screens	,718			
Fast modules	,713			
See customer info in sales process	,595			

Table 12: Factor Analysis and Reliability Analysis for Sales Modules

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		,817
Bartlett's Test of Sphericity	**Approx. Chi-Square**	374,552
	Df	28
	Sig.	,000

Table 13: Kaiser-Meyer-Olkin and Bartlett's Test Results for Sales Modules

	FACTOR LOADING	VARIANCE EXPLAINED	CRONBACH ALPHA	NO OF ITEMS
FACTOR 6. CUSTOMER-PRODUCT RELATED REPORT MODULES		37,533 %	0,751	4
Creating new strategies	,861			
Measuring performance of services	,796			
Segmenting customers	,653			
Estimation reports	,603			
FACTOR 7. COMPANY RELATED REPORT MODULES		31,565 %	0,874	2
Measuring performance of employees	,917			
Measuring performance of company	,911			
TOTAL VARIANCE EXPLAINED		69,098 %		

Table 14: Factor Analysis and Reliability Analysis for Report Modules

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		,706
Bartlett's Test of Sphericity	**Approx. Chi-Square**	237,795
	Df	15
	Sig.	,000

Table 15: Kaiser-Meyer-Olkin and Bartlett's Test Results for Report Modules

Correlational Analysis and Regression Analysis Results

After factor analysis and reliability analysis, seven independent and two dependent variables are defined. Before constructing a model with these variables, this part will analyze correlational analysis and regression analysis. The partial correlations between nine variables are analyzed. The result is listed in the Table 16. Please refer to Appendix 3.

The high correlation level, which is 0.693, between the "CRM Operational Success" and "Customer-Product Related Report Modules" is obvious in the correleational analyses results. Another strong relationship is between "CRM Operational Success" and "Performance of Technical Modules".

In order to construct a model, a regression analysis has been held via SPSS. For each dependent variable regression analysis has been performed. In the first analysis, "CRM Operational" is entered as dependent variable. Although significance level of the result is 0,000, some of the variables are not significant. Therefore, the significant variables, which are "Operational of Technical Modules", "Performance of Technical Modules" and "Report of Customer-Product", are entered into regression analyses again. The results of this regression analysis are listed in Table 17. Please refer to Appendix 3.

As can be seen from Table 17 in Appendix 3, r2 has been 0,629 and r has been 0,793. This shows that the model is meaningful and reliable for the variables used in the regression. When we also analyze the significance level of "CRM Operational Success", this value is 0,000 and significant. The independent variables are described as significant in the analysis. These are "Operational Process of Technical Modules",

"Performance of Technical Modules" and "Report of Customer-Product". This shows that there is positive and strong relationship between these variables and "CRM Operational".

After analyzing "CRM Operational" dependent variable, "CRM Learning" is entered as dependent variable into regression analysis. The results of this regression analysis are listed in Table 18. Please refer to Appendix 3.

As can be seen from Table 18, r2 has been 0,107 and r has been 0,327. This shows that the model is not meaningful and reliable for these variables. When we also analyze the significance level of "CRM Learning Success", this value is 0,142 and not significant. This shows that there could not be found any relationship between these variables and "CRM Learning". Nevertheless, if the independent variables are analyzed one by one in the regression analysis, there may be found relations between these independent variables and "CRM Learning". These analyses will be explored in the hypotheses in the next part.

Statistical Analysis Related to Hypothesis

In this section, hypotheses, which are stated in "Purpose of the Research" section, are analyzed. At first, the model will be tested based on analysis results, which will guide the verification or falsification of the hypotheses following. Afterwards, each hypothesis will be tested.

H1: "Performance of Technical Modules" has a significant & positive impact on "CRM Operational Success" in telecom sector.

According to the ANOVA table presented in Table 17 in Appendix 3, the above hypothesis, which claims the relationship between "CRM Operational Success" and "Performance of Technical Modules" in telecom sector, is significant (P=0,011). Please refer to Table 17 for the results of the regression analysis.

H2: "Operational Process of Technical Modules" has a significant & positive impact on "CRM Operational Success" in telecom sector.

To find out the relationship between “Operational Process of Technical Modules” and “CRM Operational Success”, a linear regression analysis is performed between these variables. The result of the regression analysis is shown in Table 19 in Appendix 3. Since the significance is 0,000, it can definitely be stated that there is a strong and positive relation between “Operational Process of Technical Modules” and “CRM Operational Success”.

This hypothesis may also be proved by using the ANOVA table presented in Table 17. Please refer to Table 17 and Table 19 in Appendix 3 for details.

H3: “Operational of Sales Modules” has a significant & positive impact on “CRM Operational Success” in telecom sector.

In order to analyze the relationship between “Operational of Sales Modules” and “CRM Operational Success”, a linear regression analysis is performed and the result is shown in Table 20 in Appendix 3. Since the significance is 0,000, it can definitely be stated that there is a strong and positive relation between “Operational of Sales Modules” and “CRM Operational Success”.

H4: “Customer-Product Related Report Modules” has a significant & positive impact on “CRM Learning Success” in telecom sector.

To find out the relationship between “Operational of Sales Modules” and “CRM Operational Success”, a linear regression analysis is performed between these variables. The result of the regression analysis is shown in Table 21 in Appendix 3. Since the significance is 0,179, it can not be defined any relationship between “Operational of Sales Modules” and “CRM Operational Success”.

H5: “Company-Employee Related Report Modules” has a significant & positive impact on “CRM Learning Success” in telecom sector.

In order to analyze the relationship between “Company-Employee Related Report Modules” and “CRM Learning Success”, a linear regression analysis is performed and the result is shown in the Table 22. Please refer to Appendix 3 for Table 22. Since the significance is 0,019, it can definitely be stated that there is a strong and

positive relation between “Company-Employee Related Report Modules” and “CRM Learning Success”.

H6: “Operational of Sales Modules” levels of users differ with respect to the departments in the telecom sector.

In order to analyze this hypothesis, independent t-test analysis is performed between “Operational of Sales Modules” and departments. The result of this analysis is shown in Table 23 in Appendix 3. Since the significance is 0,056 (t= 0,831), it may be stated that “Operational of Sales Modules” levels of users does not differ with respect to the departments.

H7: “Operational of Technical Modules” levels of users differ with respect to the departments.

In order to analyze this hypothesis, independent t-test analysis is performed between “Operational of Technical Modules” and departments. The result of this analysis is shown in Table 24. Please refer to Appendix 3. Since the significance is 0,181 (t=1,348), it can not be defined that “Operational of Technical Modules” levels of users differ with respect to the departments.

H8: “Performance of Technical Modules” levels of users differ with respect to the departments.

In order to analyze this hypothesis, independent t-test analysis is performed between “Performance of Technical Modules” and departments. The result of this analysis is shown in Table 25 in Appendix 3. Since the significance is 0,984 (t = 0,20), it can not be defined that “Performance of Technical Modules” levels of users differ with respect to the departments.

H9: “CRM Learning Success” levels are different when users have CRM application training or not.

In order to analyze this hypothesis, independent t-test analysis is performed between “CRM Learning Success” and “CRM Application Training”. The result of this

analysis is shown in Table 26 in Appendix 3. Since the significance is 0,199 (t=1,293), it can not be defined that “CRM Learning Success” levels are different when users have CRM application training or not.

H10: “CRM Learning Success” levels are different when users have different CRM application usage levels.

To analyze the hypothesis, One-way ANOVA Analysis is performed between “CRM Learning Success” and “CRM Application Usage”. The results are shown in Table 27. Please refer to Appendix 3 for details. As the P value is 0,436 (F= 0,838), the hypothesis is not meaningful.

H11: “Customer-Product Related Report Modules” levels are different when employees use different CRM applications.

To analyze the hypothesis, One-way ANOVA Analysis is performed. The results are shown in Table 28. Please refer to Appendix 3. As the P value is 0,746 (F=0,486), the hypothesis is not meaningful.

H12: “Company-Employee Related Report Modules” levels are different when employees use different CRM applications.

To analyze the hypothesis, One-way ANOVA Analysis is performed. The results are shown in Table 29. Please refer to Appendix 3. As the P value is 0,876 (F=0,302), the hypothesis is not meaningful.

7. CONCLUSION

The study points out that, CRM applications are important to reach success in CRM strategies. In addition, using CRM application becomes necessary in today's competitive environment. Thereby, CRM applications must meet the needs of the sector that they are used in (Bose, 2002). From this point of view, the main aim of the study is to build successful CRM application model for telecom sector.

With the help of literature review, a CRM application model is developed. This model consists of two dependent and seven independent variables. One of the dependent variables is "CRM Operational Success" which describes the operational parts of the application. The other one is "CRM Learning Success" which is related with the learning process of the application. The independent variables are related with the modules of telecom-based CRM applications.

Statistical analyses indicate various prominent results in the model. One of the most important results shows that all of the independent variables are significant on "CRM Operational Success" in telecom sector. These independent variables are "Operational Process of Technical Modules", "Performance of Technical Modules", "Operational Process of Workflow Modules", "Report Process of Workflow Modules", "Operational Process of Sales Modules", "Customer-Product related Report Modules" and "Company-Employee related Report Modules".

The study showed that both "Operational Process of Technical Modules" and "Performance of Technical Modules" have great impact on "CRM Operational Success". From this point of view, power of technical modules in telecom-based CRM applications can be realized easily.

According to Ndubisi, sales management module is very important to reach success in CRM applications (Ndubisi, 2007). This assumption was proved with the study. Because, it is stated that "Operational Process of Sales Modules" has great impact on "CRM Operational Success".

The study also showed that report management module is very important to reach success in CRM applications as Kotorov said (Kotorov, 2003). Because, it is an obvious result that both "Customer-Product related Report Modules" and "Company-Employee related Report Modules" have great impact on "CRM Operational Success".

According to Thomas, the role of workflow management module is vital for reaching success in CRM applications (Thomas, 2002). The study supported this idea by proving the great impact of both "Operational Process of Workflow Modules" and "Report Process of Workflow Modules" on "CRM Operational Success".

On the other hand, the study showed that "Operational Process of Sales Modules" and "Company-Employee Related Report Modules" are not significant on "CRM Learning Success". From this point of view, we can say that sales modules and company-based modules do not help employees and company to learn CRM application. However, the results indicate that "Operational Process of Technical Modules" and "Performance of Technical Modules" have great impact on "CRM Learning Success". From this point of view, training of technical modules is very important for "CRM Learning Success" in telecom based CRM applications.

Another interesting result of the research is that, "Operational Process of Sales Modules" perceptions of the users differ with respect to departments. However, "Performance of Technical Modules" does not differ with respect to departments. In addition, "Performance of Technical Modules" has a significant impact on "CRM Operational Success". These findings show that "Performance of Technical Modules" is important for all employees in telecom sector. From this point of view, we can say that employees of telecom companies are aware of the importance of technical modules.

The research also indicates that "CRM Learning Success" perceptions of the employees do not change whether they get CRM training or not. This shows that all of the employees have same perception of "CRM Learning Success". Furthermore, interval of CRM application usage does not change the perceptions of the users about "CRM Learning Success" either. From this point of view, any demographic property does not affect "CRM Learning Success".

Research also shows that, “Company-Employee Related Report Modules” and “Customer-Product Related Report Modules” perceptions of the employees do not change with respect to CRM application they use. From this point of view, we can say that common fundamental can be gathered from the properties of “Report Modules” in telecom-based CRM applications.

Consequently, the research findings stated that telecom-based CRM application model is highly dependent on “Performance of Technical Modules”, “Operational Process of Technical Modules” and “Costumer-Product Related Report Modules”. From this point of view, the technical modules and the customer-oriented reports must be evaluated and be considered very efficiently and effectively while implementing a telecom-based CRM application.

APPENDIXES

APPENDIX 1: QUESTIONNAIRE

Below questionnaire is a part of the MBA thesis prepared about **"Successful CRM Application Model in Telecom Sector"** in Marmara University, Institute of Social Sciences.

Thanks in advance for your participation.

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1. Which department do you work for?

   ☉ Sales/Marketing ☐ Technical

2. Which CRM application do you use in your company?

   ☉ In-house
   ☐ Microsoft CRM
   ☐ Emptor CRM
   ☐ Siebel CRM
   ☐ Other

3. Since when do you use CRM application?

   ☉ Less then 1 year
   ☐ 1-2 Years
   ☐ 2-3 Years
   ☐ 3-4 Years
   ☐ More then 4 years

4. Have you get CRM application training?

   ☉ Yes ☐ No

5. What level of importance does the following have on the success of CRM applications? (1=Not Important At all, 5= Very Important)

	(1)	(2)	(3)	(4)	(5)
1. High performance	☐	☐	☐	☐	☐
2. Training for the modules	☐	☐	☐	☐	☐
3. Time for efficiency	☐	☐	☐	☐	☐
4. Make jobs easy	☐	☐	☐	☐	☐
5. Direction for jobs	☐	☐	☐	☐	☐

7. Get customer information easy	☐	☐	☐	☐	☐
8. Get customer information quickly	☐	☐	☐	☐	☐
9. Supply better services for customers	☐	☐	☐	☐	☐

6. What level of importance does the following have on the success of Technical Modules of CRM applications? (1=Not Important At all, 5= Very Important)

	(1)	(2)	(3)	(4)	(5)
1. Putting services into operation quickly	☐	☐	☐	☐	☐
2. Putting services into operation automatically	☐	☐	☐	☐	☐
3. Modules should have enough customer information	☐	☐	☐	☐	☐
4. User-friendly screens	☐	☐	☐	☐	☐
5. Fast modules	☐	☐	☐	☐	☐
6. Direction in screens	☐	☐	☐	☐	☐
7. Managing services easily	☐	☐	☐	☐	☐
8. No multi-recording	☐	☐	☐	☐	☐
9. Automatic warning mechanism	☐	☐	☐	☐	☐
10. Reaching customer tickets immediately	☐	☐	☐	☐	☐
11. Modules should have integration with external systems.	☐	☐	☐	☐	☐

7. What level of importance does the following have on the success of Workflow Modules of CRM applications? (1=Not Important At all, 5= Very Important)

	(1)	(2)	(3)	(4)	(5)
1. Defining customized flows for services	☐	☐	☐	☐	☐
2. Defining documents in flows	☐	☐	☐	☐	☐
3. Reaching service documents easily	☐	☐	☐	☐	☐
4. Documents must be filled by the flows	☐	☐	☐	☐	☐
5. Better communication between technical and sales departments	☐	☐	☐	☐	☐
6. Reporting delays in flows	☐	☐	☐	☐	☐
7. Reporting bugs in reports	☐	☐	☐	☐	☐

8. What level of importance does the following have on the success of Sales Modules of CRM applications? (1=Not Important At all, 5= Very Important)

	(1)	(2)	(3)	(4)	(5)

1. Customized sales process for services	☐	☐	☐	☐	☐
2. Starting operation process of services after sales	☐	☐	☐	☐	☐
3. User-friendly screens	☐	☐	☐	☐	☐
4. Fast modules	☐	☐	☐	☐	☐
5. Automatic warning mechanism	☐	☐	☐	☐	☐
6. Direction in screens	☐	☐	☐	☐	☐
7. Managing services easily	☐	☐	☐	☐	☐
8. See customer info in sales process	☐	☐	☐	☐	☐

9. What level of importance does the following have on the success of Report Modules of CRM applications? (1=Not Important At all, 5= Very Important)

	(1)	(2)	(3)	(4)	(5)
1. Creating new strategies	☐	☐	☐	☐	☐
2. Measuring performance of services	☐	☐	☐	☐	☐
3. Estimation reports	☐	☐	☐	☐	☐
4. Segmenting customers	☐	☐	☐	☐	☐
5. Measuring performance of employees	☐	☐	☐	☐	☐
6. Measuring performance of company	☐	☐	☐	☐	☐

APPENDIX 2: ANKET

Marmara Üniversitesi/Sosyal Bilimler Enstitüsü İngilizce İşletme Bölümü'nde, yüksek lisans tez araştırması için **"Telekom Sektöründe Başarılı CRM Uygulaması Modeli"** ile ilgili bir saha araştırması yürütülmektedir.

Bu çerçevede aşağıdaki anket formunun tarafınızca doldurulmasını rica eder, katkılarınız için şimdiden teşekkür ederiz.

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1. Şirketinizde hangi departmanda çalışmaktasınız?

   ☐ Satış/Pazarlama ☐ Teknik

2. Şirketinizde aşağıdaki CRM Uygulamalarından hangisini kullanmaktasınız ?

   ☐ Şirket içi geliştirilen
   ☐ Microsoft CRM
   ☐ Emptor CRM
   ☐ Siebel CRM
   ☐ Diğer

3. Şirketinizde ne kadar zamandır CRM Uygulaması kullanmaktasınz ?

   ☐ 1 Yıldan Az
   ☐ 1-2 Yıl
   ☐ 2-3 Yıl
   ☐ 3-4 Yıl
   ☐ 4 Yıldan Fazla

4. CRM Uygulamasının eğitimi aldınız mı?

   ☐ Evet ☐ Hayır

5. CRM Uygulamalarının başarılı olmasında aşağıdaki etkenler ne derece önemlidir? (1=hiç önemli değil, 5= çok önemli)

	(1)	(2)	(3)	(4)	(5)
1. Performansının yüksek olması	☐	☐	☐	☐	☐
2. Modüllerin eğitimlerinin verilmiş olması	☐	☐	☐	☐	☐
3. Uygulamanin etkin kullanılabilmesi için belirli bir zaman geçmesi	☐	☐	☐	☐	☐
4. Yaptığınız işleri kolaylaştırması	☐	☐	☐	☐	☐
5. Ne yapılması konusunda yönlendirebilmesi	☐	☐	☐	☐	☐
6. Diğer departmanlarla olan veri paylaşım problemini ortadan kaldırması	☐	☐	☐	☐	☐

7. Müşteri hakkında yeterli bilgiye kolayca ulaşılması	☐	☐	☐	☐	☐
8. Müşteri hakkında yeterli bilgiye hızlı bir şekilde ulaşılması	☐	☐	☐	☐	☐
9. Müşterilere daha iyi hizmet vermeyi sağlaması	☐	☐	☐	☐	☐
10. Müşteri ve Kontak bilgilerine dinamik özelliklerin eklenmesine izin vermesi	☐	☐	☐	☐	☐

6. CRM Uygulamalarında Teknik Modüllerin başarılı olmasında aşağıdaki etkenler ne derece önemlidir? (1=hiç önemli değil, 5= çok önemli)

	(1)	(2)	(3)	(4)	(5)
1. Hizmetlerin devreye alınma süresinin hızlı olması	☐	☐	☐	☐	☐
2. Hizmetlerin otomatik devreye alınabilmesi	☐	☐	☐	☐	☐
3. Modüllerin yeterli müşteri bilgisi içermesi	☐	☐	☐	☐	☐
4. Ekranların kullanıcı dostu olması	☐	☐	☐	☐	☐
5. Modüllerin hızlı olması	☐	☐	☐	☐	☐
6. Ekranların yönlendirici olması	☐	☐	☐	☐	☐
7. Hizmetlerin yönetiminin kolay olması	☐	☐	☐	☐	☐
8. Aynı verinin bir çok yere girilmemesi	☐	☐	☐	☐	☐
9. Otomatik uyarı mekanızmalarının olması	☐	☐	☐	☐	☐
10. Müşteri tarafından açılan sorunlara anında ulaşılabilmesi	☐	☐	☐	☐	☐
11. Modüllerin ilgili oldukları sistemlerle entegrasyonunun olması	☐	☐	☐	☐	☐

7. CRM Uygulamalarında İş Akışı Modülünün başarılı olmasında aşağıdaki etkenler ne derece önemlidir? (1=hiç önemli değil, 5= çok önemli)

	(1)	(2)	(3)	(4)	(5)
1. Ürün, hizmete özgü farklı akışların tanımlanabilmesi	☐	☐	☐	☐	☐
2. Akışlarda kullanılan dökümanların tanımlanabilmesi	☐	☐	☐	☐	☐
3. Devreye alınacak servise ait dökümanlara kolayca ulaşılabilmesi	☐	☐	☐	☐	☐
4. Akış tarafından oluşturulan dökümanlarda gerekli alanların dolu gelmesi	☐	☐	☐	☐	☐
5. Teknik departman ile satış departmanı arasında iletişimi kolaylaştırması	☐	☐	☐	☐	☐
6. İş akışındaki gecikmelerin nedenlerini raporlayabilmesi	☐	☐	☐	☐	☐
7. İş akışındaki aksaklıkları raporlayabilmesi	☐	☐	☐	☐	☐

8. CRM Uygulamalarında Satış Modülünün başarılı olmasında aşağıdaki etkenler ne derece önemlidir? (1=hiç önemli değil, 5= çok önemli)

	(1)	(2)	(3)	(4)	(5)
1. Satış sürecinin ürüne bağlı olarak özelleştirilebilmesi	☐	☐	☐	☐	☐
2. Satış sonrası otomatik hizmet devreye alma sürecinin başlaması	☐	☐	☐	☐	☐
3. Ekranların kullanıcı dostu olması	☐	☐	☐	☐	☐
4. Modüllerin hızlı olması	☐	☐	☐	☐	☐
5. Otomatik uyarı mekanizmalarının olması	☐	☐	☐	☐	☐
6. Ekranların yönlendirici olması	☐	☐	☐	☐	☐
7. Ürün ve hizmetlerin kolay tanımlanıp yönetilebilmesi	☐	☐	☐	☐	☐
8. Satış anında müşterinin mevcut durumunun görüntülenmesi	☐	☐	☐	☐	☐

9. CRM Uygulamalarında Raporlama Modülünün başarılı olmasında aşağıdaki etkenler ne derece önemlidir?
(1=hiç önemli değil, 5= çok önemli)

	(1)	(2)	(3)	(4)	(5)
1. Yeni stratejiler geliştirmeye yardımcı olması	☐	☐	☐	☐	☐
2. Ürün ve hizmetlerin performansının ölçülebilmesi	☐	☐	☐	☐	☐
3. Tahmini raporlamalara sahip olması	☐	☐	☐	☐	☐
4. Müşterileri segmentlere ayırabilmesi	☐	☐	☐	☐	☐
5. Çalışanların performanslarının ölçülebilmesi	☐	☐	☐	☐	☐
6. Şirket performansının ölçülebilmesi	☐	☐	☐	☐	☐

APPENDIX 3: RESEARCH ANALYSIS RESULTS

		Operat. Tech.	Performa. Tech.	Operat. Workflow	Report of Workflow	Oper. Sales	Report Customer Product	Report Company Employee	CRM Learning	CRM Opera.
Operational of Technical	Pearson C.	1	,530**	,632**	,462**	,654**	,583**	,465**	,211**	,615**
	Sig. (2-tailed)		,000	,000	,000	,000	,000	,000	,033	,000
	N	102	102	102	102	102	102	102	102	102
Performance of Technical	Pearson C.	,530**	1	,618**	,393**	,605**	,553**	,366**	,256**	,677**
	Sig. (2-tailed)	,000		,000	,000	,000	,000	,000	,009	,000
	N	102	102	102	102	102	102	102	102	102
Operational of Workflow	Pearson C.	,632**	,618**	1	,509**	,653**	,615**	,457**	,213**	,604**
	Sig. (2-tailed)	,000	,000		,000	,000	,000	,000	,032	,000
	N	102	102	102	102	102	102	102	102	102
Report of Workflow	Pearson C.	,462**	,393**	,509**	1	,565**	,559**	,445**	,218**	,512**
	Sig. (2-tailed)	,000	,000	,000		,000	,000	,000	,028	,000
	N	102	102	102	102	102	102	102	102	102
Operational Of Sales	Pearson C.	,654**	,605**	,653**	,565**	1	,724**	,453**	,184	,632**
	Sig. (2-tailed)	,000	,000	,000	,000		,000	,000	,064	,000
	N	102	102	102	102	102	102	102	102	102
Report of Customer Product	Pearson C.	,583**	,553**	,615**	,559**	,724**	1	,467**	,134	,693**
	Sig. (2-tailed)	,000	,000	,000	,000	,000		,000	,179	,000
	N	102	102	102	102	102	102	102	102	102
Report of Company Employee	Pearson C.	,465**	,366**	,457**	,445**	,453**	,467**	1	,232**	,474**
	Sig. (2-tailed)	,000	,000	,000	,000	,000	,000		,019	,000
	N	102	102	102	102	102	102	102	102	102
CRM Learning	Pearson C.	,211*	,256**	,213**	,218*	,184	,134	,232**	1	,253*
	Sig. (2-tailed)	,033	,009	,032	,028	,064	,179	,019		,010
	N	102	102	102	102	102	102	102	102	102
CRM Operational	Pearson C.	,615**	,677**	,604**	,512**	,632**	,693**	,474**	,253*	1
	Sig. (2-tailed)	,000	,000	,000	,000	,000	,000	,000	,010	
	N	102	102	102	102	102	102	102	102	102

**. Correlation is significant at the 0,01 (2-tailed)
*. Correlation is significant at the 0,05 (2-tailed)

Table 16: Correlations between Variables

Model Summary

MODEL	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,793 (a)	,629	,618	,33202

a Predictors: (Constant), Performance of Technical, Operational of Technical, Report of Customer-Product

ANOVA(b)

MODEL		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18,355	3	6,118	55,502	,000 (a)
	Residual	10,803	98	,110		
	Total	29,159	101			

a Predictors: (Constant), Performance of Technical, Operational of Technical, Report of Customer-Product
b Dependent Variable : CRM Operational

Coefficients(a)

MODEL	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 CONSTANT	,965	,276		3,493	,001
Operational of Technical	,185	,071	,206	2,591	,011
Performance of Technical	,278	,060	,362	4,667	,000
Report of Customer-Product	,343	,075	,075	4,602	,000

a Dependent Variable : CRM Operational

Table 17: Results of the Regression Analysis with CRM Operational and independent variables

Model Summary

MODEL	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,327 (a)	,107	,041	,76331

a Predictors: (Constant), Report of Company-Employee, Performance of Technical, Report of Workflow, Operational of Technical, Report of Customer-Product, Operational of Workflow, Operational of Sales

ANOVA(b)

MODEL		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6,568	7	,938	1,640	,142 (a)
	Residual	54,768	94	,583		
	Total	61,336	101			

a Predictors: (Constant), Report of Company-Employee, Performance of Technical, Report of Workflow, Operational of Technical, Report of Customer-Product, Operational of Workflow, Operational of Sales
b Dependent Variable : CRM Learning

Coefficients(a)

MODEL	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 CONSTANT	2,384	,663		3,596	,001
Operational of Technical	,089	,184	,069	,485	,629
Performance of Technical	,224	,148	,202	1,511	,134
Operational of Workflow	,031	,189	,025	,165	,869
Report of Workflow	,125	,120	,132	1,047	,298
Operational of Sales	-,036	,233	-,026	-,156	,876
Report of Customer-Product	-,204	,205	-,153	-,996	,322
Report of Company-Employee	,141	,120	,139	1,177	,242

a Dependent Variable : CRM Learning

Table 18: Results of the Regression Analysis with CRM Learning and independent variables

ANOVA(b)

MODEL		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11,016	1	11,016	60,715	,000 (a)
	Residual	18,143	100	,181		
	Total	29,159	101			

a Predictors: (Constant), Operational of Technical
b Dependent Variable : CRM Operational

Coefficients(a)

MODEL	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 CONSTANT	1,993	,311		6,401	,000
Operational of Technical	,552	,071	,615	7,792	,000

a Dependent Variable : CRM Operational

Table 19: Results of the Regression Analysis with CRM Operational and Operational Process of Technical Modules

ANOVA(b)

MODEL		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11,654	1	11,654	66,574	,000 (a)
	Residual	17,505	100	,175		
	Total	29,159	101			

a Predictors: (Constant), Operational of Sales
b Dependent Variable : CRM Operational

Coefficients(a)

MODEL	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 CONSTANT	1,768	,325		5,445	,000
Operation of Sales	,610	,075	,632	8,159	,000

a Dependent Variable : CRM Operational

Table 20: Results of the Regression Analysis with CRM Operational and Operational of Sales.

ANOVA(b)

MODEL		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,102	1	1,102	1,189	,179(a)
	Residual	60,234	100	,602		
	Total	61,336	101			

a Predictors: (Constant), Report of Customer-Product
b Dependent Variable : CRM Learning

Coefficients(a)

MODEL		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	CONSTANT	3,170	,572		5,546	,000
	Report of Customer-Product	,179	,133	,134	1,352	,179

a Dependent Variable : CRM Learning

Table 21: Results of the Regression Analysis with CRM Learning and Customer-Product Reports.

ANOVA(b)

MODEL		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3,293	1	3,293	5,674	,019(a)
	Residual	58,043	100	,508		
	Total	61,336	101			

a Predictors: (Constant), Report of Company-Employee
b Dependent Variable : CRM Learning

Coefficients(a)

MODEL		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	CONSTANT	2,912	,437		6,670	,000
	Report of Company-Employee	,236	,099	,232	2,382	,019

a Dependent Variable : CRM Learning

Table 22: Results of the Regression Analysis with CRM Learning and Company-Employee Related Reports.

Group Statistics

	Department	N	Mean	Std. Deviation	Std. Error Mean
Operation of Sales Modules	Sales/Marketing	31	4,4677	,47977	,08617
	Technical	71	4,2394	,57699	,06848

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Operation of Sales Modules	Equal variances assumed	,046	,831	1,930	100	,056	,22831	,11832
	Equal variances not assumed			2,074	68,199	,042	,22831	,11006

Table 23: Results of the Independent Samples T-test Analysis with Operation of Sales Modules and Departments.

Group Statistics

	Department	N	Mean	Std. Deviation	Std. Error Mean
Operation of Technical Modules	Sales/Marketing	31	4,4758	,52184	,09372
	Technical	71	4,3028	,62524	,07420

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Operation of Technical Modules	Equal variances assumed	,785	,378	1,348	100	,181	,17299	,12832
	Equal variances not assumed			1,447	67,952	,152	,17299	,11954

Table 24: Results of the Independent Samples T-test Analysis with Operation of Technical Modules and Departments.

Group Statistics

	Department	N	Mean	Std. Deviation	Std. Error Mean
Performance of Technical	Sales/Marketing	31	4,1720	,52965	,09513
	Technical	71	4,1690	,76609	,09092

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Performance Of Technical	Equal variances assumed	2,333	,130	,020	100	,984	,00303	,15146
	Equal variances not assumed			,023	80,908	,982	,00303	,13159

Table 25: Results of the Independent Samples T-test Analysis with Performance of Technical Modules and Departments.

Group Statistics

	CRM Training	N	Mean	Std. Deviation	Std. Error Mean
CRM Learning Success	Yes	62	4,0161	,67731	,08602
	No	40	3,8125	,91067	,14399

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
CRM Learning Success	Equal variances assumed	3,253	,074	1,293	100	,199	,20363	,15752
	Equal variances not assumed			1,214	66,397	,229	,20363	,16773

Table 26: Results of the Independent Samples T-test Analysis with CRM Learning Success and CRM Training.

Descriptives

CRM Learning

	N	Mean	Std. Deviation	Std. Error	Minimum	Maxium
Less than 1 Year	35	3,8000	,94090	,15904	1,00	5,00
2-3 Years	37	4,0270	,63406	,10424	2,50	5,00
More than 3 years	30	3,9833	,73676	,13451	2,00	5,00
Total	102	3,9363	,77928	,07716	1,00	5,00

CRM Learning

ANOVA

	Sum of Square	df	Mean Square	F	Sig.
Between Groups	1,021	2	5,11	,838	,436
Within Groups	60,315	99	,609		
Total	61,336	101			

Table 27: Results of the One-way ANOVA Analysis between CRM Learning Success and CRM Application.

Descriptives

Customer-Product Modules

	N	Mean	Std. Deviation	Std. Error	Minimum	Maxium
In-House	44	4,2727	,63296	,09542	1,75	5,00
Microsoft CRM	12	4,1042	,82887	,23927	2,25	5,00
Emptor CRM	32	4,3281	,45983	,08129	3,50	5,00
Siebel CRM	1	4,7500	.	.	4,75	4,75
Other	13	4,2500	,43301	,12010	3,75	5,00
Total	102	4,2721	,58244	,05767	1,75	5,00

Customer-Product Modules

ANOVA

	Sum of Square	df	Mean Square	F	Sig.
Between Groups	,674	4	,168	,486	,746
Within Groups	33,589	97	,346		
Total	34,263	101			

Table 28: Results of the One-way ANOVA Analysis between Customer-Product Related Report Modules and CRM Application.

Descriptives

Report of Company-Employee

	N	Mean	Std. Deviation	Std. Error	Minimum	Maxium
In-House	44	4,2841	,95478	,14394	1,00	5,00
Microsoft CRM	12	4,3333	,44381	,12812	4,00	5,00
Emptor CRM	32	4,4063	,61484	,10869	3,00	5,00
Siebel CRM	1	5,0000	.	.	5,00	5,00
Other	13	4,3077	,66265	,18379	3,00	5,00
Total	102	4,3382	,76483	,07573	1,00	5,00

Report of Company-Employee

ANOVA

	Sum of Square	df	Mean Square	F	Sig.
Between Groups	,727	4	,182	,302	,876
Within Groups	58,354	97	,602		
Total	59,081	101			

Table 29: Results of the One-way ANOVA Analysis between Company-Employee Related Report Modules and CRM Application

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