A proposed Framework for CRM On-Demand System Evaluation

Evaluating Salesforce.com CRM and Microsoft Dynamics Online

C A N Ö Z C A N L I

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Abstract

Customer Relationship Management has been an integral part of the enterprise since two decades. Today, enterprises that focus on customer satisfaction need to manage their relationships with their customers effectively. This demand has allowed software vendors to create CRM solutions. The technology and broadband advancement allowed the CRM vendors to enhance their product portfolio by developing web-based CRM systems, in addition to their CRM on-premise solutions. These vendors adopted the business model in which CRM on-demand systems are provided via monthly-subscription fees, decreasing the total cost of ownership massively for enterprises in need of these systems. This business model is especially attractive for Small-To-Medium Enterprises who are searching for cost-efficient CRM systems.

Currently, CRM on-demand market is quite saturated with more than 40 vendors providing similar solutions. Furthermore, CRM on-demand is delivered via Software-as-a-service method, which is a relatively new technology with unique benefits along with drawbacks. Thus, it’s of vital importance for managers in SMEs to make the right decision while evaluating the CRM on-demand option and systems. This research is meant to address this issue by building a proposed framework for CRM on-demand system evaluation.

The inductive research uses qualitative and quantitative approaches for data collection and analysis. The evaluation criteria for CRM on-demand systems at a functional and general level were proposed. The general criteria were refined via collecting data from CRM on-demand experts and users in SMEs by structured questionnaires. Combining these criteria created the proposed framework which was applied to evaluate two major CRM on-demand systems in the market. The results indicate that CRM on-demand systems cover the basic functionalities of CRM including sales, marketing and service modules and offer enhanced functionality such as mobile CRM, social CRM and customizations. The research also revealed drawbacks of CRM on-demand systems such as disintegration with legacy applications, limited language support, limited country availability and technology maturity which needs to be addressed in the future.

This research provides valuable insight for managers in SMEs when selecting CRM on-demand systems for their companies. Furthermore, the academicians interested in CRM and cloud computing could improve this initial proposed framework and adapt it further to different cases.

Keywords

CRM on-demand system evaluation framework, CRM on-demand systems, CRM, CRM and SaaS, CRM on-demand, SME
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1. INTRODUCTION

This chapter provides an introduction to the topic, defines the problem area and research goal. Furthermore, the research methodology, research process, target audience, scope and limitations are discussed.

1.1 Background

The modern business conditions, digitalization and ruthless competition of the current business market have forced many enterprises to focus on the customer as the single most important entity of their business. Optimization of production processes may have been the core purpose of the companies in the past however the evolution of the business conditions now require customer service, marketing and sales to be at the core of business. Thus, modern customer relationship management is advised for many enterprises that need not only to acquire new customers but also retain them.

Customer relationship management (CRM) has evolved throughout time and it’s considered being a business wide strategy inhibiting aspects such as human, organization, technology and business processes these days. CRM concept was initiated in 90’s as simple spreadsheets which contained customer contact information and became more complex with the introduction of sales, marketing and customer service automation modules. Today, there are more than 40 CRM vendors offering enterprise wide solutions that can be integrated with legacy systems [33]. Furthermore, the technology and broadband advancement allowed these vendors to offer various CRM solutions with different deployment opportunities, namely CRM-on-premise and CRM-on-demand.

CRM-on-premise allowed enterprises to manage their customer information, integrating the departmental information into a shared database whilst allowing integration with other IS systems such as ERP and SCM. It was a revolution in itself until the new software delivery methods such as software-as-a-service emerged with the foundation of cloud computing. Cloud computing enabled individuals and enterprises to store and access their information and create applications via internet, eliminating the need of local computing resources and storage space. Thus, an extension of cloud computing, namely software-as-a-service (SaaS) delivery method became an opportunity for IS vendors to create web-enabled solutions for their customers.

SaaS, also referred as “on-demand software”, is the name given to software offered via internet and accessed by web browsers.

CRM vendors started utilizing this disruptive delivery method and created CRM solutions that would be accessed over the internet. Today, these web-based CRM systems are referred as “CRM on-demand”, which utilizes SaaS delivery method. They are rapidly becoming popular among enterprises especially small-to-medium enterprises (SMEs) that are looking to deploy faster, cheaper, mobile and effective CRM solutions.

Considering the fact that CRM solutions are vital for businesses, creating a good CRM vision, strategy, IT strategy and organizational alignment along with choosing the right vendor are crucial for successful CRM adoption. Unfortunately, the failure rate of CRM implementations is still high [7]. Thus, it’s essential to make careful analysis within the organizational processes and the vendors before making a decision of purchasing CRM software. This is especially vital for SMEs as the cost of these systems are high and SMEs have tight budgets compared to large enterprises.
SMEs, also referred as “Small and Medium Businesses” are defined by EU commission as [37]:

“A small enterprise is defined as an enterprise which employs fewer than 50 persons and whose annual turnover and/or annual balance sheet total does not exceed EUR 10 million. A medium-sized enterprise is defined as an enterprise which employs fewer than 250 persons and whose annual turnover does not exceed EUR 50 million or whose annual balance-sheet total does not exceed EUR 43 million.”

CRM on-demand offer low-cost and stable business solutions which make them a perfect fit for SMEs, compared to CRM-on premise solutions that entail costs such as hiring IT personnel, training employees, IT infrastructure, vendor and upgrade fees. By lowering IT and back-office costs, SMEs have the opportunity to channel their costs towards gaining new customers and creating sales pipelines. The market situation, as of now, confirms this assumption. It has been suggested that as of 2010, the 32% of the IT application budgets of SMEs will be spent for CRM on-demand adoption and money spent on CRM on-demand is expected to increase exponentially in the near future [38]. Thus, CRM on-demand option has reached a point that it can’t be overlooked before purchasing a CRM solution, especially for SMEs.

1.2 Problem Statement and Goal

CRM on-demand solutions may seem like the perfect choice, however choosing the right system becomes an issue for many SMEs. The CRM on-demand market is saturated, thus there are many vendors to choose from that provide similar solutions. Furthermore, CRM on-demand still has some barriers and issues to be considered such as data security, scalability, integration and functionality when compared to CRM on-premise solutions. Since CRM on-demand is relatively a new technology, SMEs need a roadmap in the adoption of this technology to maximize the value they receive. Thus, an objective evaluation framework is crucial for managers in SMEs to make the right informed decision.

The goal of this thesis is to provide a proposed framework that combines the functional and general criteria for CRM on-demand system evaluation and to apply the framework by evaluating the two major CRM on-demand vendors in the market. Thus, the revised framework will serve SMEs as an initial roadmap in CRM on-demand system selection. It will also serve as a basis for future researchers that would like to improve or test the framework in different cases.

1.3 Purpose

Many scholars have investigated the success factors of CRM implementation and CRM strategy [13-19]. Furthermore, there are many non-academic roadmaps and evaluations of CRM on-demand vendors. Gartner Research group publishes a yearly report of CRM on-demand vendor evaluation [39] and business-software.com publishes a yearly evaluation of CRM vendors. While these reports are valuable information sources, there’s still the lack of a framework for successful CRM on-demand system evaluation done at academic level.

The purpose of this thesis is to investigate successful approaches for CRM on-demand system evaluation and create an initial and objective framework that will serve as a roadmap for SMEs in the process of CRM on-demand system selection. The proposed framework will also be applied to evaluate two major CRM on-demand solutions in the market, thus providing an evaluation example for the audience. This initial framework will also provide a basis for future researchers to improve the evaluation framework and/or apply it in specific cases.
1.4 Research Questions

The main research questions that will be answered with this thesis are:

- What are the evaluation criteria for CRM on-demand system selection?
- How can an evaluation framework be formed for managers in SMEs to make a decision among CRM on-demand systems?
- How can the evaluation framework be applied to CRM on-demand solutions?

1.5 Target Audience

The target audience is the decision makers in SMEs that would like to have a roadmap for evaluating and choosing the right vendor for the application of successful CRM on-demand. The secondary audience is the academicians that would like to get an insight about CRM on-demand system evaluation and/or would like to make further improvements and tests to the evaluation framework.

1.6 Scope and Limitations

The proposed framework that will be offered by the thesis work is a generic framework that will serve as the initial version of CRM on-demand system evaluation framework. It can be further developed or applied to different cases by other academicians in the future. The framework scope is limited to SMEs as the problem statement indicates. There will be no country limitations for the target audience. At this point, the framework will be applied to evaluate two major CRM on-demand systems as there’s limited time to complete the research.

1.7 Disposition

Chapter 1: Introduction

This chapter provides an introduction to the topic, defines the problem area and research goal. Furthermore, the research methodology, research process, target audience and limitations are discussed.

Chapter 2: Methodology

This chapter explains the research methodology on a logical level along with data collection and analysis methods in detail. It also provides an overview of research process.

Chapter 3: Extended Background

This chapter gives a detailed explanation of the scientific concepts used in the thesis. CRM, evolution of CRM, previous studies on successful CRM implementations, SaaS, Cloud Computing, CRM and SaaS are explained in detail.

Chapter 4: Building the CRM On-Demand System Evaluation Framework

This chapter provides the reader with steps in building the evaluation framework, including the approach, the literature review. Initial part of the framework, which is the general criteria is proposed along with the second part of the framework which is the functional criteria is also proposed and explained. Thus, the general criteria and functional criteria form the initial evaluation framework.

Chapter 5: Refining the CRM On-Demand System Evaluation Framework
In this chapter, the general proposed criteria created in the previous chapter are validated by means of a survey study. The survey reliability and validation studies are carried out. Thus, the refined framework is formed.

Chapter 6: Application of the Framework

In this chapter, the evaluation framework is applied to the selected systems. Vendor selection model is discussed and both systems are analyzed according to the general and functional criteria. The results of the analysis are discussed.

Chapter 7: Concluding Remarks

In this chapter, the results of the framework application are discussed. The author also reflects on his work, proposes different ways to improve each part of the thesis and recommends different future work paths.
2. METHODOLOGY

Various methods have been used to complete the research including inductive approach at the logical level, extensive literature review and questionnaire method for data collection and mixed research method for data analysis. The following sub-sections describe the overall methodology in more detail.

2.1 Research Method

Scientific research has two main approaches at the logical level that deals with the relationship between theory and empirical data, which are induction and deduction [52]. In deductive research, hypothesis (theory) is put forward by the researcher and tested by inferring conclusions from empirical data [53]. Thus, the researcher needs to have some knowledge and assumed solution (hypothesis) to the problem beforehand and tests it by different means of data collection and analysis. In inductive research, the theory is inferred as a conclusion of observing empirical data [53]. Thus, the researcher starts by collection and observing data, continues with the problem definition and concludes with theory which becomes proposed solution to the problem.

The thesis aims to develop an artifact which is the CRM on-demand evaluation framework that will be proposed as a solution to CRM on-demand system selection, especially for SMEs. The researcher follows the inductive research approach at the logical level as there’s no clear hypothesis offered at the start of the research. Instead, the problem “CRM on-demand system selection for SMEs” is introduced and the proposed framework (theory) will be offered as the conclusion.

2.2 Data Collection and Analysis Methods

There are three methods of data collection and analysis in scientific researches which are qualitative, quantitative and mixed methods. Qualitative research is a systematic approach to processes by the means of observational data collection and analysis [53]. Generally, the data collected is of textual nature. Quantitative research consists of collecting numerical data and analyzing them in a statistical way to reach the goal.

Both methods have their advantages and disadvantages. Qualitative research is beneficial when complex processes need to be analyzed in order to form a theory when there’s insufficient information to form a pre-defined hypothesis. Furthermore, this type of research may lead to further research questions for other academicians to pursue further research in the area [53]. However, qualitative research can also lead to subjective conclusions as the researcher depends of previous literature which may not be objective at all times. Thus, quantitative research may help in this case to further validate and generalize the findings by creating samples of the audience to gather opinions of a specific group and statistically analyze them. The combination of qualitative and quantitative data collection and analysis method, in this case is called “mixed method”.

In this thesis, the research will use mixed method for data collection and analysis to overcome the limitations inherent in each method. In qualitative research, mainly three techniques of data collection are used which are interviews, observations and documentation [53]. Structured interview technique will not be used since the target audience of the thesis is SMEs that are geographically dispersed around the globe. The researcher will use documentation technique to collect scientific articles, professional whitepapers, data sheets, demos and books. For the quantitative part, self-administered questionnaire technique is used for data collection and validation that will be sent to CRM on-demand experts and users. Later, the questionnaire results will be analyzed and checked for internal validity and reliability.
Detailed explanation of the questionnaire method along with study sampling, pilot testing, validity and reliability studies will be given in section 5.1.2.1.

2.3 Framework Application and Analysis Methods

The application of the evaluation framework consists of two pillars that complement each other which are:

- **General Selection Criteria**: These criteria are deduced from extensive literature review about articles related to SaaS product selection criteria, innovation attributes and software selection criteria. The criteria are generally related to non-functional aspects of the software. The criteria are applied to evaluate the chosen CRM on-demand solutions qualitatively by reviewing the demo material, data sheets and product information on each vendor’s websites.

- **Functional Selection Criteria**: These criteria are also deduced from desktop research by investigating the top vendors’ functionality offered as of December 2011. Thus, they will need to be updated in the future, if any researcher wants to build up on the initial framework offered by this thesis. These criteria are applied quantitatively, by three rankings: ‘Yes’, ‘Limited’, ‘No’. The notations of these rankings are presented in section 6.3.

2.4 Research Process and Material

The thesis begins with extensive literature review about CRM, evolution of CRM, SaaS, cloud computing and CRM on-demand for the clear contemplation of these concepts by the audience. The initial literature review is also provides a pre-study for building the framework.

A number of articles were chosen by desktop research and analyzed to form the general evaluation criteria of CRM on-demand system evaluation. The proposed general criteria provide input for the questionnaire prepared to validate and refine the general criteria by experts for the evaluation of CRM on-demand systems. The refined general criteria are later merged with the proposed functional criteria to create the initial proposed framework. The proposed framework is later applied to evaluate the chosen CRM on-demand vendors and the results of the evaluation will be used to revise the framework. Limitations of the thesis work and framework along with future work and discussion will conclude the thesis.

The detailed research process and related chapters are described and depicted in the figure below.

*Extended Background*: The literature review done in this chapter provides input and guideline to create the proposed general criteria and CRM on-demand system review.

*Building the Framework*: The proposed functional and general selection criteria are created with input from the literature review that will create the framework.

*Refining the Framework*: In this chapter, the proposed general criteria are validated by a survey expert and converged along with the functional criteria to refine the framework.

*Application of the Framework*: The refined evaluation framework is applied quantitatively and qualitatively to the two chosen CRM on-demand systems in this chapter.

*Concluding Remarks*: In this chapter, the results of the framework application are discussed. The author also reflects on his work, proposes different ways to improve each part of the thesis and recommends different future work paths.
Various resources were accessed for the thesis including professional sources such as company websites, vendor whitepapers, research papers, system trials and demos, along with academic publications retrieved from resources such as IEEE Explore, ACM Digital Library, KTH library, Google scholar, Springerlink, ScienceDirect, Scopus and etc.
3. EXTENDED BACKGROUND

This chapter gives a detailed explanation of the scientific concepts used in the thesis. CRM, evolution of CRM, previous studies on successful CRM implementations, SaaS, Cloud Computing, CRM and SaaS are explained in detail.

3.1 CRM

Customer Relationship Management (CRM) was introduced in USA around mid 90’s and it has evolved into a globally accepted concept since then. [4] There are various definitions of CRM. According to the editors of CRM magazine, CRM is defined as:

“CRM, or Customer Relationship Management, is a company-wide business strategy designed to reduce costs and increase profitability by solidifying customer satisfaction, loyalty, and advocacy. True CRM brings together information from all data sources within an organization (and where appropriate, from outside the organization) to give one, holistic view of each customer in real time. This allows customer facing employees in such areas as sales, customer support, and marketing to make quick yet informed decisions on everything from cross-selling and up-selling opportunities to target marketing strategies to competitive positioning tactics.” [2]

One can refer to the following definition of CRM for a simpler contemplation:

“Comprehensive strategy and process of acquiring, retaining and partnering with selective customers to create superior value for the company and the customer.” [5]

There are three basic phases of CRM framework. The first phase is to increase revenue by retaining existing customers referred in the literature as Customer Retention. This means offering existing customers better service and offering them campaigns according to their profile to maximize the revenue. Companies usually focus on this phase because it costs 6 times more to sell to a new customer than to an existing one. [1] The second phase is to integrate information services to serve the customer in a more efficient way and creation of supplementary products for them which is referred as Customer Extension. This phase basically means knowing each customer very well and serving them without making them repeat personal information along with offering them new products. Finally, the last phase includes defining sale procedure and efficient processes to create more sale channels thus gaining new customers referred as Customer Acquisition. This way, more employees will work towards sales and increasing the revenue of the company while gaining new customers.

3.1.1 Evolution of CRM

It’s vital to investigate how CRM concept evolved throughout time to understand the level that it has reached today. It will give the audience a clearer understanding of the adaptation of CRM to the changing market trends and technology as an enabler for CRM development. The following figure visualizes the evolution of CRM.
Individual CRM

CRM was merely conceived as storing customer information, in the early phases of CRM. It never was
thought of as a complex and deep solution that would include customer analytics or relationships
between existing data. Initially, CRM included simple functions such as billing, customer information
and simple marketing lists [6]. Demographic information of the customers was used to access the
location and contact information of the customer. Furthermore, they were used to target specific
customer groups for marketing purposes.

Individual CRM, which is the earliest phase of the CRM solutions were customer databases and
simple workbooks. The later phase of these solutions was developed to focus on contact manage-
ment functionality [6]. Examples of these solutions are Microsoft Outlook and IBM Lotus Notes which
store the contact information of individuals and business men. These applications have the
functionality to store physical addresses, e-mail addresses, phone numbers and internet messaging
information and can be utilized according to specific needs of the user.

This phase of the CRM had many problems such as duplication of customer information and no
structured relationship between the data. An employee from the marketing department could access
different phone numbers of the customer compared to the employee in accounting department. There
was no consolidation and integration of data yet realized.

Departmental CRM

Approaching the end of the 20th century, the data consolidation within CRM systems which would
lead to a total departmental CRM solution became the new focus of research and development. Thus
new CRM solutions emerged namely “Sales Force Automation, Marketing Automation and Customer
Service Automation” [6]. These three concepts now represent the core of CRM.

The creation of these concepts and data consolidation lead to a more effective communication between
departments, more time working with customers and less time producing manual reports as well as
identification of relationships within existing data. However, the magnitudes of data lead to problems
such as classification of the important and less important data. Thus, the processes of the marketing,
sales and customer service automation became necessary to be automated as well.
The process automation did not come easy to the enterprises. IT required through investigation of the existing processes, employee training, and time and thus high cost. These steps lead to a concept used today namely “People, Process and Technology” [6] which refer to the actors that need to be considered in the change management of departments for the effective CRM implementation.

The automation of processes in sales departments lead to the creation of the Sales Force Automation (SFA) concept. The generation of manual reports, wrong approach in assigning employees to customers, time spent on repeating tasks and training of sales personnel on processes were the major problems in sales departments [6]. These problems were solved with the automation of tasks, easy and fast access to information. Thus, SFA brought better customer relationships, created productive sales teams and a better sales management and transparency.

The marketing department used to identify prospective customers by reviewing the simple lists and databases in the individual CRM stage. Reviewing the activities and analyzing the responses from the customer during the campaign process, lead to different opportunities which were realized as a total marketing solution namely Marketing Automation (MA). This automation enabled revolutionary functions such as lead and campaign management, budget planning, customer analytics and lead management [6]. Thus, MA shortened campaign timelines, stable relationships with prospects and better management control.

Customer service centers, although considered to be cost centers of an enterprise, play an important role in customer relationship management. Enterprises spend time to minimize their budgets for the service centers while maximizing the quality of service their customers receive. Having a consolidated customer information panel where all the customer service representatives can easily reach the demographic data along with past communications and billing information. Maintaining the past communications with the customers also allow the managers to visualize the quality of service in the customer service centers. Customer Service Automation [6] basically increases customer satisfaction, maximize the efficiency of the employees and supply the managers with the necessary metrics to visualize the service center success.

CRM development took a major lead with departmental CRM however problems and challenges arouse as well. Full consolidation of data among all the departments in the organization was missing. In some enterprises, different departments implemented different departmental CRM solutions which caused integration and communication problems. The new CRM solutions had integration problems with legacy systems.

The CRM Suite

Many CRM vendors were forced to improve their departmental CRM solutions and offer a solution where all the customer interactions in all departments within the enterprise would be captured. This has caused some new vendors to enter the market as niche players with mergers and acquisitions. [6] The all-around CRM solutions later came to be known as CRM Suite which became the next phase of CRM evolution.

Another important revolution in CRM came with the creation of web-enabled CRM systems at the beginning of 2000’s [6]. These solutions would allow enterprises to pay a monthly fee for the web-based CRM solutions. They were also referred as ‘on-demand’ or SaaS (Software-as-a-service) solutions.

CRM Suite solved many problems that existed in departmental CRM stage and had many advantages such as offering the employees with a single view of the customer, cross departmental visibility and
automation of workflow across departments. However, it created problems as well such as the implementation complexity and huge integration costs [6].

**Beyond CRM boundaries**

This phase corresponds to the next era in CRM. Departmental CRM and CRM Suite enabled effective relationships, data tracking, and marketing solutions. However, there was the necessity of a flexible and integrated model where the partner and supplier information could also be stored. Thus, beyond CRM boundaries phase was introduced. Below is a figure that depicts the overview of the phase.

![Figure 3. Beyond CRM boundaries [6, p. 26]](image)

The solution depicted above allows enterprises to customize and integrate their business processes which allow greater flexibility according to earlier phases of CRM. Furthermore, employees in the enterprises could access the system from their mobile phones or internet. This great flexibility and revolution concludes the CRM evolution as of today.

### 3.1.2 Previous Studies on Successful CRM Implementations and Models

It’s of vital importance to have a holistic understanding of successful CRM approaches and investigate the previous research by scholars on the matter. Holistic CRM is the combination of strategical, organizational and process related aspects that needs to be considered for the overall success of CRM. This section will provide the reader with a holistic view of CRM before the technological aspects are further discussed.

Research done by groups such as Gartner, Butler Group and Forrester Research show that CRM implementation failure rates are quite high during the period of 2001-2009 [7]. One of the reasons for this fact is the misunderstanding of CRM concept. [8] Enterprises purchase and deploy CRM software and assume that CRM implementation is over. However, they overlook to consider the aspects such as people, change management, process re-engineering and organizational management [9]. Popovich and Chen [10] described the different factors of holistic CRM as people, process and technology.

- **People**: Human factor relates to managing people resistance to new technology, training, user acceptance, transparent communication among departments, management support
- Process: Processes that relate to customers within an enterprise are sales, marketing and customer service that are to be automated with CRM.
- Technology: This factor is a bridge between people and processes and facilitates the CRM strategy implementation. It includes IT management, on-premise vs on-demand CRM vendor selection, configuration, customization, deployment and support.

![Figure 4. CRM aspects](image)

Many scholars and researchers have deducted success factors and created models for successful CRM implementation. Mendoza, Marius, Perez and Griman [11] proposed a model of 13 critical success factors categorized by human, process and technology factors along with creation of 55 metrics to calculate the effectiveness of CSFs. They evaluated the model by means of a survey sent to professionals and experts in the area of CRM.

Kim [13] developed a scorecard for CRM performance measurement, for which he built a theoretical map, integrated models and prioritized CRM success factors along with the definition of key performance indicators (KPIs). Thus, he came up with 7 different CRM perspectives such as organizational performance, customer, process, IT, human capital, strategic alignment and culture. For each perspective, he developed diagnostic factors and later measurements (ROI, satisfied customer ratio, response time etc) to define their success. He validated his theory by applying a case study at a bank in Korea.

Pan and Ryu [14] suggested an approach to improve CRM implementations by the application of Six Sigma DMAIC [15] methodology. They analyzed the critical success factors of CRM implementation by the means of literature review and survey. Then, they integrated DMAIC method to the CRM implementation process and validated their final model by the help of a case study.

Kim [16] investigated how CRM system development may lead to success or failure in a CRM implementation project. He analyzed the IS development process models in two different projects (one success, one failure). He investigates sub-processes such as organization commitment, strategy and process, technology and project management that complements each other for the holistic IS process. As a conclusion, he came up with statements such as ‘system integration improves IS quality’ and ‘change management and IS quality both influence the new system’s use’. [16]
Wilson, Hugh and McDonald [17] analyzed the success factors of CRM. They synthesized previous research about the subject and came up with a final success factor list that included factors such as attending a championship/sponsor, raise board awareness, manage IT infrastructure, make a strategy roadmap and etc. They tested their findings by the help of five case studies.

Thomas and Rainer [18] investigated six successful CRM projects and came up with six critical success factors for CRM implementation which includes organizational re-design, change management, step wise evolution, top management support, straightforward implementation and integrated IS architecture.

Roh [19] created a prioritized factor methodology for the successful implementation of CRM and validated his method by the help of CRM experts that are employed in 14 enterprises.

Öztaysi, Sezgin and Ozok [20] created a tool for the measurement of CRM success. They analyzed the current findings of CRM success factors, decided upon 7 factors, validated the importance of the factors by the means of a survey and created a tool for measurement of CRM success.

The previous studies mentioned above, have focused on holistic CRM success. Even tough, this perspective doesn’t relate with the actual thesis aim, it provides an informative insight about the business and organization aspects of CRM to the reader. We will now proceed with technological aspects of CRM including Saas, cloud computing, Saas adoption drivers and the SWOT analysis of on-premise CRM and on-demand CRM to concentrate on the actual topic.

### 3.2 Cloud Computing

Cloud computing is a revolutionary concept in today’s technology and creates great hype among technology communities. Every year, Gartner Research Group identifies 10 disruptive technologies that will make an impact on enterprises for the upcoming years and they have mentioned ‘Cloud Computing’ as one of the top 10 strategic technologies for 2011. [21]

Various professionals have tried to come up with definitions of cloud computing [22] but we can refer to the following definition for easy contemplation:

“… Cloud computing is an emerging computational model in which applications, data and IT resources are provided as services to the users over the Web (the cloud)” [23]

Users utilize the cloud by accessing computing power, databases, information, networks and CPU in a virtual and dynamic environment. Even though, it’s still referred as an emerging model, cloud computing is part of daily life for individuals using services such as Google Docs, Google mail and/or Microsoft Live services. As for enterprises, cloud computing is relatively a new concept and understood as SaaS (Software-As-a-Service) which includes services and COTS (Commercial Off-The-Shelf) such as ERP-on-demand and CRM-on-demand. The actors and services related to the cloud can be depicted by observing the figure below.
The capabilities of the cloud can be categorized into three different services:

- **Software as a Service (SaaS):** This category includes all the applications and software provided by the vendors. Users utilize these programs by running them on the cloud via internet instead of using local computers. Online office applications such as Google Docs and CRM on-demand applications such as Salesforce are SaaS examples.

- **Platform as a Service (PaaS):** The cloud also provides run-time environment and a virtual infrastructure for the clients to develop their software on. A known example for PaaS is Google Apps Engine [24].

- **Infrastructure as a Service (IaaS):** This service refers to the computing power, CPU and network power shared over the cloud. Clients can purchase virtual servers and deploy local software on the cloud. The virtualization providers known in this area are Amazon and AT&T which offer storage and network capabilities [25].

Cloud computing is categorized into three models when investigated from a deployment perspective.

- **Public cloud:** As its name suggests, public clouds are accessible by anyone (individuals, corporations, enterprises, institutions etc) Public clouds are owned by third party cloud providers and they offer pay-on-use payment models to the users. The utilization of this mechanism is simple however security of critical data and vendor stability are important factors that define the stability of the services offered via public cloud.

- **Private cloud:** This cloud model provides services to a restricted group of users and consumers. Governmental institutions, hospitals usually prefer this method to secure their critical data [26]. It requires great internal workforce and cost to implement this cloud model as internal resources are responsible for the development of the software and maintenance of the data center.

- **Hybrid cloud:** A combination of public and private cloud creates the hybrid cloud. This method enables the public access to some services while the crucial services are accessed...
internally. Security and governing this complex system is vital in the success of the hybrid cloud.

There are various cloud adoption issues discussed by different authors [28, 29] that can be conceived as barriers and motivations for implementation of cloud computing in enterprises. Factors such as outage, data security, availability, performance, compliance, integration, cost and organizational environment need to be assessed carefully before committing to cloud provider(s).

Michael Armbrust and various scholars from Berkeley University [27] put forward 10 obstacles and opportunities in cloud computing. The figure below shows the summary of their findings.

![Figure 6. Obstacles and Opportunities of Cloud Computing][27]

As depicted at the table above, Armbrust identified the obstacles that need to be addressed and proposed solutions and opportunities entailing from these obstacles.

### 3.3 Software as a Service

Software as a service (SaaS) is a delivery model of cloud computing that is widely purchased nowadays by many enterprises. SaaS, also named as “on-demand” software, is becoming the next paradigm in software delivery by offering software services via internet. Therefore, it’s eliminating the need for on-site IT resources (servers, applications, and employees) which makes it a cost-efficient system of handling enterprise-systems such as ERP (Enterprise Resource Planning), CRM, HRM (Human Resources Management) and so forth. It’s estimated that SaaS usage will have a growth ratio of 17% in 2011 in the areas of ERP, CRM and SCM (Supply Chain management) for small-to-medium enterprises (SME) [28].

SaaS was established on the idea of outsourcing business applications to providers which goes back as far as 50 years. As a consequence of digital era expansion with the internet in 90s, Application Service Providers (ASP) emerged in the business market. Initially, enterprises used to rent their software and deployed them on-site, where as the contemporary ASPs provided them with web based client-server architectures. SaaS can be seen as an extension of ASPs, making these solutions more cost efficient by eliminating the need for purchasing IT resources at all.
SaaS differs from ASP in two major characteristics: the supplier numbers and granularity of the software [29]. SaaS offers more flexibility and customization of the software, whereas ASPs offered standardized software with minimal customization. ASPs paired up with one software supplier whereas SaaS providers partnered with lots of software and hardware suppliers to offer a wide range of flexible solutions to their customers. The figure below depicts the difference of ASP and SaaS architectures.

![Figure 7. Saas vs ASP](image)

SaaS model provides a central IT infrastructure and database as it’s observed in the figure above. It enables providers to offer flexible and customizable solutions for the customers with one central IT structure. This allows economies of scales for the providers and also affordable IT solutions for the customers. This win-and-win situation is the major advantage of SaaS over ASP and referred as “multi-tenancy”. On the other hand, in ASP model, every time a customer signs a contract with the provider, a specific instance of the server needs to be dedicated for that customer which increases the costs and work force necessary to satisfy the customer’s needs.

The low monthly subscription costs and efficiency of SaaS systems makes the SaaS market attractive for enterprises, especially SMEs that couldn’t afford expensive on-premise software licenses. Therefore, SaaS market has been growing exponentially and will continue the growth rate as most of the analyst suggests. According to a research done by Gartner Group [31], SaaS market revenue is expected to reach to $12 billion at the end of 2011, achieving a growth of 20 percent compared to 2010. The same report by Gartner has forecasted the global revenue of SaaS market will reach to $21 billion of revenue by 2015.

### 3.4 SaaS and CRM

SaaS software model has been a major revolution in software delivery and IT outsourcing. The availability and ease of access to information over the internet triggered new opportunities for ERP, SCM and CRM providers in the market. CRM applications constitute a vast amount of IT budgets in enterprises [32] and CRM is still forecasted to remain as the biggest market for SaaS [31]. In these market dynamics, it’s logical to assume that SaaS will continue to be the enabler of CRM progress.
CRM solutions delivered via SaaS method, also referred as “CRM On-demand”, are especially suitable for SMEs (small-to-medium enterprises). It allows them to have effective CRM solutions whilst maintaining low cost structures on IT budgets and operational efficiency in the competitive market conditions [36]. SMEs lease SaaS licenses instead of purchasing IT infrastructure and software and hiring IT personnel to maintain the systems. The SaaS model reduces risks, IT costs and saves time.

CRM on-premise, also referred as traditional CRM systems needs careful planning, organizational change in sales and marketing divisions, process re-engineering, purchase of IT infrastructure and software, customization and deployment of software and training to the employees. These activities create a cost structure that can be overseen by large enterprises, not by SMEs. SMEs should choose plug and play CRM systems, paying only monthly subscription fees and acquiring CRM system with the help of consultants from the vendor or the affiliate.

The advantages and new features offered by CRM on-demand systems can be summarized as the following [36]:

- CRM on-demand enables personalization for each enterprise. CRM on-demand module offers the basic CRM functions such as customer service, sales, telemarketing, contact management and lead management [36]. Since every enterprise has different needs for services, they would have a personalized interface according to their business requirements and organizational model.
- CRM on-premise solutions offer the possibility of customization of the business logic for each enterprise. CRM on-demand also offers this possibility by offering customized interface. The users of SaaS CRM can login to the CRM system and change the business logic real-time which makes it much faster than traditional CRM systems.
- CRM on-demand is more flexible than classical CRM systems in terms of functionality development. The users with the right authority can login to the system and develop new functionality. The new functionality represents their newly implemented business function and it could be developed a sub-functionality which can be shared across other users or customers using the CRM on-demand system.
- CRM on-demand is much cheaper as it only requires monthly subscription fee, less IT staff and low capital expenditures as mentioned earlier. It also allows the mobile usage of the system over mobile phones, automatic upgrades without additional cost, a flexible system that enables customization and adding new functionality and increasing the capacity of the IT infrastructure as the enterprise grows.

There are still some barriers and disadvantages of the CRM on-demand model which have to be mentioned at this point which are:

- The CRM on-demand system is directly exposed to internet and thus security becomes an issue. The internet data center which lies at the core of CRM on-demand needs to be protected from intrusion attacks. This problem can be solved by implementing firewalls, Anti-denial of Service and Intrusion Detection Systems (IDS) [36]. The mission critical data should be backed up on a regular basis. Authorization should be handled by access control lists and data should be encrypted.
- The increasing need for IT infrastructure network capacity issue should be addressed requiring the usage of cloud computing along with SaaS, which will enable simple and efficient management of the network resources [36].
• The customer demands will increase as the technology expands. The services provided will need to improved, such as data mining module should be introduced as it will allow the customer to convert data into knowledge and analyze customer trends and associations.

• There’s always the risk of down-time and the customer is totally dependent on the CRM on-demand vendor for reliability and availability of the service.

The aforementioned advantages and disadvantages of CRM on-demand systems need to be reviewed carefully before making an ultimate decision. Furthermore, there are the external factors which can be considered as opportunities and threats. These are the natural consequences of market conditions and technology advancement.

• Technology and broadband advancement are definitely opportunities which will improve the service of CRM on-demand vendor. The services will be offered faster and quicker as the broadband speed advances. The improvement on virtualization technology is another driver that can be considered as an opportunity along with the many CRM on-demand vendors in the market.

• The human factor can still be considered as a threat to CRM on-demand. The customer that’s happy with the existing CRM on-premise systems can be reluctant to switch to CRM on-demand. CRM on-demand system is not fully integrated to other legacy systems which will also create human resistance to make a transition to CRM on-demand. Data security and system availability are the other major concerns.
4. BUILDING THE CRM ON-DEMAND SYSTEM EVALUATION FRAMEWORK

Until now, the audience has been presented with general background information about CRM and its evolution, SaaS and cloud computing which leads to the foundation of CRM on-demand concept and the correlation between SaaS and CRM. The previous literature review study provides a guideline to the literature review carried out in this chapter which will lead to the foundation of the evaluation framework. The initial part of the framework consists of the general selection criteria of CRM on-demand solutions which consist of non-functional criteria. Later on, the second part of the framework will be built that corresponds to the CRM on-demand functional criteria.

4.1 General Selection Criteria

4.1.2 Approach

Extensive literature review has been carried out to determine the key criteria of CRM on-demand products. The chosen articles were focused on the key characteristics and quality attributes of a CRM on-demand product and vendor, rather than the functionality which will be evaluated later on. Various academic and professional resources has been used during the research including vendor whitepapers, books, online journals and articles retrieved from IEEE explorer, ACM digital library and Springer link along with reports about CRM on-demand vendors retrieved from Gartner Research group.

The articles were chosen according to three criteria which are credibility, relativity and being up-to-date which provides the reasoning and validity of the proposed criteria.

Keywords used in research included terms such as “Innovation effectiveness ”, “ SaaS CRM adoption “ , “ SaaS characteristics”, “Technology adoption”, “ SaaS features and attributes”, “ SaaS CRM vendor selection criteria”. These keywords are results of the literature review carried out in the previous chapter, specifically the sections 2.1.2, 2.2, 2.3 and 2.4. According to the outcome and analysis which will be described below, 8 articles were chosen to define the initial criteria for vendor selection. These articles can be categorized into two pillars according to their focus:

- SaaS specific: Related articles or whitepapers that investigate the features, benefits, advantages of SaaS and cloud-based applications along with SaaS vendor selection.
- Adoption and innovation specific: Articles that investigate the possible requirements for adoption of a certain innovation

When combined, these articles form the basis for the general criteria that will be used partly for CRM on-demand vendor evaluation method. The general criteria will later be validated by means of a questionnaire which will be distributed to the CRM on-demand system users which include IT managers, CIOs, sales and marketing professionals in SMEs.

CRM on-demand consists of two major pillars: SaaS and CRM. The general criteria that will be created at this point correspond to SaaS pillar of the evaluation method. Later on, the functional criteria will be designed which will correspond to the CRM pillar of the method. Thus, these two complementing pillars, when converged, will form the framework which later will be applied by evaluating the chosen vendors.
4.1.3 Chosen Articles for General Selection Criteria

We have identified CRM on-demand as a disruptive and emerging technology earlier and thus we can assume that CRM based on SaaS as a delivery method is an innovation compared to CRM on-premise systems. Rogers [40] argues that innovation is a major factor in adoption rate of systems in his famous publication: “Diffusion of innovation”. He defines innovation as [40]:

“An innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption.”

Furthermore, he goes on to define the perceived attributes of innovation which is directly correlated with the rate of adoption. The attributes of innovation, which will be analyzed for the evaluation criteria of CRM on-demand systems, are depicted below.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative advantage</td>
<td>The degree to which an innovation is perceived as being better than the idea it supersedes</td>
</tr>
<tr>
<td>Compatibility</td>
<td>The degree to which an innovation is perceived as consistent with the existing values, past experiences and needs of potential adopters</td>
</tr>
<tr>
<td>Complexity</td>
<td>The degree to which an innovation is perceived as relatively difficult to understand and use</td>
</tr>
<tr>
<td>Triability</td>
<td>The degree to which an innovation may be experimented with on a limited basis</td>
</tr>
<tr>
<td>Observability</td>
<td>The degree to which the results of an innovation are visible to others</td>
</tr>
</tbody>
</table>

Table 1 – Innovation Attributes [40]

These attributes can easily be integrated to any innovation adoption case including CRM on-demand adoption. When they are reviewed from this perspective, compatibility attribute will correspond to the enterprise’s IT culture, ease of adoption and integration of the technology to the company. Complexity will correspond to the user friendliness of the chosen CRM on-demand package. Triability will correspond to the vendor’s trial offerings to the enterprise before the sale. Finally, observability will correspond to the visibility of the proven success stories of the vendor (case studies etc) which the vendor can use actively to gain the potential customer’s trust before the sale. The last two attributes stand out from the others and they define the vendor trustability which is an important factor for obtaining a long term successful relationship between the vendor and the customer.

Mulik and Godse [41] investigated the ideal approach in selecting SaaS product adoption for enterprises. They have chosen key SaaS parameters by the means of literature review and applied them to a case study regarding the application SFA (Sales Force Automation) in a mid-sized enterprise. SFA is a critical element of CRM on-demand and thus the paper is directly relevant to our research. They have prioritized the success parameters and created a parameter hierarchy using Analytical Hierarchy Process (AHP). They have surveyed experts on the topic to define the final hierarchy of parameters. The final hierarchy can be observed in the figure below.
The functionality factor contains the attributes of a SFA module in CRM on-demand which will be ignored at this point since the functional analysis will be done at a later stage. The architecture factor includes technical sub factors such as the scalability of the system as the customer needs increase, the reliability of the system which refers to the correctness of the information provided to the enterprise along with system availability, integration of CRM on-demand system with other legacy systems and high security of data. The usability factor of the system refers to the quality of the customer support provided by the vendor using all communication interfaces including mobile support. The vendor reputation and cost are pre-sales and financial factors which affect the purchase of the system on a huge scale.

Kim, Lee and Cheun [42] proposed a model for evaluating the quality of SaaS products. They have focused on quality attributes for SaaS, established the key features of SaaS and pursued with the definition of quality attributes and metrics. Furthermore, they have validated their final quality metrics by using IEEE 1061 model. The final quality attributes they defined are:
Reusability: This attribute indicates the services’ ability to satisfy customer requirements.
Availability: It refers to the robustness of the service and the percentage of time that it’s available for usage by the customers.
Reliability: This attribute refers to the stability of the system, the accuracy of the data provided to the customer.
Efficiency: Indicates the resources and time required to use the service
Scalability: Indicates the flexibility potential of the system as the customer needs increase over time.

Another study was conducted by Luiz Zambalde and Bermejo[43] to define the quality attributes for SaaS product which would serve as a guideline for companies that wants to adopt SaaS products. They have mapped the attributes to quality factors by the help of extensive literature review and thus identified the impact of attributes to the perceived gain of SaaS products. The attributes defined are:

- Security: Indicates reliability, integrity, availability and world-class data encryption
- Functionality: Indicates the adequacy of the system, interoperability meaning integration with other systems, access to multiple users, accuracy of the results provided
- Service quality: Indicates the service level agreement, continuity plan, and data management and migration plan and audit ability.
- Customer support: Indicates personalization capability, problem handling and support by the vendor, testability and stability
- Portability: Adaptability and ability to co-exist with other systems
- Performance: Indicates scalability, customization, expandability and resource utilization
- Usability: Refers to ease of usability, low learning curve, user interface attractiveness and operability

Sun, Huang and Wang [44] has studied SaaS concept, the challenges and benefits it brings to the companies and created a model that would serve the companies as a strategy for SaaS customization and configuration. They have identified important factors in SaaS that needs to be perfected. These factors are:

- Massive multi-tenancy: Low cost CRM on-demand solution enabled by utilizing the same infrastructure for all the customers. Some customers however may request a dedicated infrastructure which will create some problems in Service Level Agreements as well as isolation of services
- Self service customization: Certain customers require customized features different from the core CRM on-demand functionality. The vendors need to handle this issue by maintaining the core of the system and allowing the customer customization and flexibility in their requirements.
- Low-cost application migration: The customer’s request of a smooth and fast migration from their legacy systems requires seamless effort and time because of the heterogeneous application environment.
- On-demand scalability: Delivering the resources that the customer needs at a certain time. This requires the vendor to offer a flexible, dynamic solution.
Workday, an established US based company offering SaaS solutions in human capital management since 2005 [45], published a whitepaper investigating the 10 critical requirements for the success of modern cloud based applications. The purpose of the paper is to differentiate the SaaS and cloud vendors and establish how the vendors adding real value can be distinguished from others. The following requirements are proposed [46]:

- **True multi tenancy:** This feature enables the customers to have the upgrades for free, thus having the latest version of the SaaS solution that the vendor is providing. The SaaS vendor needs to provide an architecture that enables this which is very costly because the application framework needs to be built from scratch. On the other hand, once built, the vendor will upgrade the software once and it will be upgraded for all customers thus being time and cost efficient. The customer may request a dedicated server and a customized solution which will then require the solution being single tenant.

- **Regularly delivered, vendor-managed updates:** According to Workday, the true benefit of SaaS is regular software updates at no additional cost.

- **Seamless integration on-demand:** The SaaS solution should be integrated with on-premise solutions thus creating a smooth migration and customer satisfaction.

- **Business driven configurability:** SaaS solution should be configurable and customizable according to the business requirements thus increasing customer satisfaction and the ability to attract different enterprises in different business domains.

- **World Class Data Security and Privacy:** The vendor should provide data security and privacy to the customer free of charge, compliant with the policies and audit laws. Furthermore, backup and disaster recovery should be provided as well.

- **High performance, Sustainable IT infrastructure:** Optimized operating systems, storage systems, databases and networks should be implemented and environmental sustainability should be concerned.

- **Predictable total cost of ownership:** There should be no upfront costs and no hidden costs for the customer other than the monthly subscription fee.

- **Fast deployment:** The customers should get the SaaS solution up and running in the minimum time possible creating the advantage over on-premise solutions.

- **Control:** The customer should access their data anytime they want without any bureaucracy even though their data is stored away from their premises. The vendor should provide the customer with a test environment before going into production.

- **Liberation from non-strategic IT issues:** CIOs or top IT managers should focus on the strategic IT and business decisions after the SaaS solution is implemented. They should not worry about the software code or implementation issues. This will ensure that the top technical managers spend their time on important strategic decisions.

Another important issue to consider while making a CRM on-demand solution selection is the business continuity. Van de Zande and Jansen [47] addressed this issue in their publication “Business Continuity for SaaS customers”. Business continuity for the CRM on-demand vendor is of vital importance. If the vendor goes out of business, the mission critical data may be lost if no risk management is done. In the paper, various risk management solutions are offered and validated by the means of an interview. The solutions consist of the customer itself taking a backup of SaaS Solution, purchasing hosting insurance with a third-party company and making arrangements with content providers. Thus, business continuity should be taken into account when defining the general criteria for CRM on-demand system evaluation.
The final issue that needs to be considered is the customer’s point of view when investing in a certain IT product. Cost is one of the most important factors especially for SMEs while making the final decision. Myllylä addressed this issue in his publication “Software Services and Packaged Software Solutions: a Customer Perspective”[48]. There are several ways of assessing IT investment’s value. One of these tools is ‘Total Cost of Ownership’ (TCO). It indicates the true cost of using a provided service. In the classical on-premise software delivery, these costs can consist of installation, configuration, training, license fee, upgrade fee, consultancy fee along with hardware and infrastructure costs. In the SaaS delivery method, ideally TCO would only consist of monthly subscription fees providing a cost-efficient solution especially for start up companies and SMEs. The following figure depicts the comparison of enterprise on-premise TCO and SaaS TCO.

Figure 8. SaaS vs On-premise TCO [48]

The literature review carried out by investigating these 8 articles will help us form the general selection criteria to form the first part of the framework. The general selection criteria are presented in section 5.1.

4.2 Functional Selection criteria

4.2.1 Approach

Identifying the functional criteria is the second step to creation of the evaluation framework and the utmost important one. The general selection criteria for CRM on-demand system evaluation can be applied to the decision making process of any SaaS or software solution, however when combined with the specific CRM-on demand functions, the framework becomes complete.

CRM on-demand functionalities entail from CRM on-premise functionalities. CRM vendors in the market are aggressively trying to mirror the functionalities that were already present in CRM on-premise solutions, to CRM on-demand packages. Furthermore, the power of web technologies and internet are utilized to create various additional features such as social CRM, email integration, online chat and web conferencing.

It’s of vital importance to cover all the functionalities that are available to enterprises today before comparing the solutions. The decision-makers in enterprises should carefully understand their
requirements and match them to the CRM on-demand functionalities offered by the vendors. Only then, the decision makers can have an informed opinion on which solution to purchase.

Various resources were accessed to identify the functional criteria of CRM on-demand packages. Considering the thesis audience which is SMEs, the functionalities offered by CRM vendors that are leaders in these segments [57] were analyzed. The vendor websites, fact sheets and white papers were analyzed to come up with the proposed functional criteria. The selected vendors and solutions are:

- Microsoft (Dynamics On-demand deployment)
- Salesforce.com (Sales Cloud, Service Cloud, data.com, Chatter)
- Oracle (Oracle CRM On-demand)
- Netsuite (Netsuite CRM+)
- SugarCRM (sugarCRM)
- Zoho (zohoCRM)

### 4.2.2 Proposed Functional Criteria

After the investigation of the CRM on-demand functionality of the systems selected in the previous section, the main pillars and entailing functionalities of the criteria are depicted below.

**Sales Force Automation:** This functionality lies at the core of CRM packages. SFA enables sales personnel to manage all steps in a sales process including lead and opportunity identification, contract management, contact and customer management along with additional features such as sales analytics, territory management and mobile sales that differentiate with the vendor. The sub-functionalities in SFA are:

- Lead and opportunity management: Enables sales people to track and manage potential customers and deals.
- Sales forecasting: Generally used by managers in sales department to get an overview of estimated sales in the future.
- Account and contact management: Stores all account and customer information in a single view and stores views the sales activities for each account along with history of the sales.
- Quote and contract management: Quote refers to the estimated cost of a product that the enterprise is proposing to the customer. After the quote, the customer may order the product. In that case, a contract will be signed among these two parties and product will be delivered. This sub-functionality basically keeps track of the actual sales process.
- Partner management: Allows collaboration with the enterprise partners for the purposes of creating more channels for sales and marketing.
- Process management: Enables automation of redundant tasks and improves efficiency while keeping track of the sales workflow and sales personnel’s activities.
- Document management: Collaboration of documents regarding sales among team members.
- Sales Analytics: Dashboards and graphs which allows the management to get a real-time overview of sales processes, progress and individual performance of team members.
- Mobile Sales: Allows sales personnel to access the SFA module when they are travelling to keep track of leads and accounts.

**Marketing Automation:** This functionality automates major marketing activities and creates an efficient marketing system for enterprises. It includes the automation of major marketing activities
such as lead management, campaign analysis, e-mail marketing, sales effectiveness and customer segmentation. The sub-functionalities of marketing automation are:

- **Campaign Planning and Execution**: Enables creation of marketing campaigns, planning the activities, tasks and resources and distribution of campaigns via different communication channels.
- **Lead management**: All the activities entailing from leads such as lead creation, lead capturing, lead prioritization and response tracking.
- **Email marketing**: Distribution of campaigns via email to selected customer segments and analysis of the performance of email marketing.
- **Marketing Analytics**: Dashboards and graphs which allow the marketing management to visualize the success of marketing department via key performance indicators.
- **Marketing workflow**: Automation of marketing activities and tasks along with creation of campaign milestones and assigning tasks to resources. Saves time and increases productivity.
- **Data imports**: Import customer or lead information from different sources into marketing automation system and removes duplicate lead information if any.
- **Customer segmentation**: Creation of customer segments for effective campaign and lead management.
- **Internet Lead Capture**: Finding leads over the internet by the help of Lead Capture Web Forms. A customer will fill out a form on the company website for more information about the related product and it will be automatically converted into a lead in the CRM system.

**Customer Service Automation**: Includes all activities in servicing the customer including case management, self-service portal, solution knowledge base, call center, service analytics, service management and workflows. The sub-functionalities in customer service and support are:

- **Call Center**: Customers can directly call a support agent via CRM system to get access to real time support.
- **Solution Knowledge-Base**: A repository of solutions to common problems kept in the database for customers and agents to access support documents.
- **Self-service Portal**: The customer can access this portal to keep track of the cases, find solutions and get access to agents.
- **Case repository and management**: Assigning cases to agents, prioritization, managing deadlines and milestones.
- **Contract management**: Helps agents to view and update customer service contracts along with selling more service contracts to customers.
- **Social-media service**: Social media monitoring that allows agents to answer customer questions that were posted in the web.
- **Real-time agents**: Customers can access the agents via live web chat to get support.
- **Service Process Management & Workflows**: Managing overall service processes, creating workflows to enhance the service.
- **Service Analytics**: Dashboards and graphs which allow the service management to visualize the success of service department via key performance indicators.
- **Mobile Service**: Customers can create tickets and get solutions via mobile devices such as Smart phones, tablets etc.
**CRM Analytics:** Real time reports and dashboards that helps managers to make quick and efficient decisions by investigating overall CRM (sales, marketing and customer service) performance. Some CRM packages allow creation of customizable reports by enabling the users to create their own reports by drag-drop solutions. CRM analytics functionalities are as follows:

- **Real time reports and dashboards:** Allows the managers to make effective decisions by fetching CRM data on real-time.
- **Historical reports and dashboards:** Allows the managers to make decisions by investigating the CRM success based on historical data.
- **Customizable reports development:** Allows the user to create customized reports and dashboards based on their business needs.

**Social CRM:** The purpose of social CRM functionality is to take advantage of the information that lies within the internet to gain customer insight. Certain CRM on-demand packages have integration features with social websites such as linkedin, facebook, twitter and so on. Document collaboration, mail and chat integration are other features of social CRM. The functionalities are as follows:

- **Social media integration:** Integration to social and professional web sites to gain customer, marketing or service insight along with real-time customer contact information.
- **Email integration:** Integration to well-known mail providers such as Outlook and gmail.
- **Online Conferencing:** Scheduling online meetings and web conferences within CRM on-demand package.
- **Document collaboration:** Store and share important CRM documents in the cloud via CRM on-demand system.
- **Internal communication:** Integrated social communication tool that allows employees to communicate and contact each other.
- **Social Media Monitoring:** Getting information about what customers think about provided CRM on-demand service by following social media websites, forums and blogs.

**Extendible CRM:** The miscellaneous functions that allows the CRM on-demand to be more powerful by third-party applications, scalable architecture or partners.

- **Partner and re-seller network:** Accessing the vendor partners to get training, support, add-ons or implementation support.
- **System management:** Ability to configure servers or manage customizations in CRM on-demand package.
- **Third party applications:** Ability to install third-party applications into your CRM on-demand package to enhance the CRM on-demand solution.
- **Customizable and dynamic architecture:** Ability to change the architecture from multi-tenant to single-tenant and vice versa along with deployment types.

**4.3 Chapter Summary**

In this chapter, the literature review that leads to defining general and functional selection criteria generation for the framework were presented.
5. REFINING THE CRM ON-DEMAND SYSTEM EVALUATION FRAMEWORK

In this chapter, the general proposed criteria created in the previous chapter are validated by means of a survey study. The survey reliability and validation studies are carried out. Thus, the refined framework is formed.

5.1 Proposed General Selection Criteria

The extensive literature review and analysis of the 8 articles carried out in the 3.1.3 section, allows us sufficient background to define the proposed general criteria. The relevance of the criteria to the articles’ content is summarized in the figure below.

<table>
<thead>
<tr>
<th>General Selection Criteria / Author</th>
<th>Rogers (46)</th>
<th>Mulik and Godoi (47)</th>
<th>Kim, Lee and Chenun (48)</th>
<th>Sam, Huang and Wang (49)</th>
<th>Worldby (45, 46)</th>
<th>Zande and Jamben (47)</th>
<th>Myphilight (48)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cost of Ownership</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Scalability</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Usability</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Integration</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Personalization and customization</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Broad functionality</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Availability and Reliability</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Implementation Time</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Security and Privacy</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Customer Support and Training</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Product Triviality</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Vendor Reputation</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Vendor Observability</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Vendor Reliability</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>

Table 2 – General Selection Criteria Article Matrix

The proposed general selection criteria and their definitions are as follows:

*Total Cost of Ownership:* Indicates the total cost of CRM on-demand solution including the initial setup fee, the monthly subscription fee and upgrade fee if any. This criterion is especially important for SMEs that want to have the optimum value with the minimum cost.

*Scalability:* The ability of the system to scale up as the customer needs and users increase. This factor becomes important as the resources in SMEs grow and more users subscribe to the service. Thus, a scalable architecture plays an important role in vendor selection.

*Usability:* This criterion has many sub-factors such as a user-friendly interface, easy learning curve, operability as well as design, browser compatibility and ergonomics. It’s especially important for the non-technical people (sales, marketing professionals) that want to utilize the system as soon as possible.
**Integration:** The ability of the system to be integrated with existing legacy systems of the customer. This criterion ensures easy migration and enables the customer to access the system within existing software.

**Personalization and customization:** Personalization refers to the flexibility of the architecture offered in the system. The customer may be offered a single-tenant CRM on-demand system isolating the data and server from other customers. Multi-tenant architecture on the other hand, will allow the customer to get the latest updates of CRM on-demand solution. Customization refers to the ability to request or develop customized features which will increase customer satisfaction and allow flexible solutions which may differ from customer to customer.

**Broad functionality:** The number of functions that the solution provides to the customer. Social features such as chat module among sales personnel and platforms that enable development of customized features create the difference among the vendors along with core modules such as sales force automation, marketing and service modules.

**Availability and reliability:** Availability of critical business and customer data stored in the system as well as the accuracy of the data. It includes measures such as response time, guaranteed uptime that the system is available for use. These metrics are generally stated in Service Level Agreements.

**Implementation time:** Indicates the rollout and migration time of a working copy of the system. It’s especially important for SMEs that needs to get the system running as soon as possible without the need for many resources saving them time and money. This factor is also often referred as “rollout time”.

**Security and privacy:** Indicates the level of data security and privacy of data. The vendor can assure this by having world class data security centers, backup, risk management and contingency plans. The privacy can be assured by protecting the system from hackers and thus application of firewalls.

**Customer support and Training:** The ability of the vendor to provide offline and online customer support in the case of failure or a bug in the system. It also includes upfront training provided to the customer. This criterion shows the dedication and reliability of the vendor and increases customer satisfaction if done properly.

**Product triability:** Indicates whether the vendor offers free trials and demos to the customer before the sale.

**Vendor observability:** Indicates whether the vendor can create trust with the customer by showcasing the success stories with successful case studies and prove their domain knowledge before the purchase.

**Vendor reliability:** Indicates if the vendor can assure business continuity. This would ensure the customer to trust that the vendor won’t go out of business; lose the data and access to mission critical services. It’s generally stated as an optional clause in Service Level Agreements and contracts made between the two parties.

**Vendor reputation:** Factors such as brand value and market share can be considered as part of vendor reputation.
5.1.2 Refinement of Proposed General Criteria

5.1.2.1 Survey Method

Survey method is a data collection technique used through different types of interviews or questionnaires [53]. Questionnaires have the advantage of measuring people’s preferences and habits even if they are geographically dispersed around the world in a cost effective way. Unstructured questionnaires are built via asking open-ended questions to respondents while structured questionnaires are built via close-ended questions such as choosing preferences via given choices.

The self-administered web questionnaire method has been chosen for this thesis for its efficiency in collecting data from globally dispersed target audience. Two sampling methods have been used while determining the survey’s target audience which is “Expert” and “Snowball” sampling [53]. Expert sampling is a method where respondents are chosen specifically in a non-random way to assure that they are knowledgeable about the survey contents. Snowball sampling is a method in which the researcher initially sends the questionnaire to a few experts, asking them to distribute it to the target audience eligible to complete it. Thus, the survey was distributed via email to 120 individuals which are:

- IT, sales, marketing managers and owners in SMEs who have experience with CRM-on-demand systems
- CRM on-demand users that work in SMEs

Online survey tools such as Zoomerang, Google docs and QuestionPro were considered for the creation of the survey. QuestionPro [50] was chosen as it had a professional look, enhanced reporting mechanism and created trust in respondents as opposed to Zoomerang and Google docs.

Questions were created to gather some insight about general information about the respondents (company, position, industry, company size). Furthermore, the survey respondents were asked to rate the proposed general criteria using 5 point Likert Scale [49] to give their opinions about the importance and validity of the proposed criteria according to the following alternatives:

- Very important
- Important
- Moderately important
- Of little importance
- Unimportant

Later, a pilot test was also carried out to ensure that respondents were familiar with the language used in the questions. The Information Company [54], a business intelligence consulting company located in Stockholm, Sweden was accessed for the pilot test. The sales manager, an information architect and the managing director were asked to review the questionnaire for language difficulty. According to the feedback, the general criteria that would be rated, was replaced with synonyms to make the language clearer. The validated survey questions can be found in the appendix.

For the distribution of the validated questionnaire, various social networking tools (linkedin, facebook and twitter) were accessed to get in touch with CRM on-demand groups and users. Individual network and several contacts within CRM on-demand vendors such as Salesforce, Microsoft and Oracle were
asked to distribute the questionnaire to sales or marketing managers at their SME customers. The questionnaire was also sent directly to CRM on-demand experts and these experts were asked to deliver it to fellow experts or users. Using these methods of distribution increased the reliability and credibility of the responses.

ANOM (Analysis of means) [55] were used to analyze the validity of the criteria rated by the survey participants. Cronbach’s Alpha [56], a tool used for internal consistency reliability [53], was calculated to demonstrate the reliability of the survey. The analysis of the survey results along with the reliability and validation analysis are done in the next section. The survey details and raw data are attached in the appendix of the thesis.

5.1.2.2 Survey Results and Analysis

The survey yielded 14 valid responses from various CRM on-demand users/experts that work in SMEs. Thus, the response rate of the questionnaire is calculated as: 14 / 120 = 0.117. The response rate of 12% is low creating non-response bias [53], which is one of the disadvantages of the questionnaire method.

Other than the informative questions and criteria rating questions, two open-ended questions were added to ensure that the respondent can recommend any other additional criteria to be added to the list along with stating their comments. 2 of the participants stated that “mobile accessibility” is also important and should be added as a criterion. The rest of the comments suggested that “the software maturity of on-demand applications should be studied” and “extraction of CRM data should be mirrored in BI applications”. These suggestions will be added to future work part of the thesis as they are out of scope for the thesis.

The summary of the participant’s rating of the proposed criteria is depicted in the table below.

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Proposed Criteria</th>
<th>Very important</th>
<th>Important</th>
<th>Moderately Important</th>
<th>Of Little importance</th>
<th>Unimportant</th>
<th>Mean (Avg.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total Cost of Ownership</td>
<td>36%</td>
<td>50%</td>
<td>14%</td>
<td>0%</td>
<td>0%</td>
<td>4.214</td>
</tr>
<tr>
<td>2</td>
<td>Scalability</td>
<td>29%</td>
<td>57%</td>
<td>7%</td>
<td>7%</td>
<td>0%</td>
<td>4.071</td>
</tr>
<tr>
<td>3</td>
<td>Usability</td>
<td>36%</td>
<td>57%</td>
<td>7%</td>
<td>0%</td>
<td>0%</td>
<td>4.286</td>
</tr>
<tr>
<td>4</td>
<td>Integration</td>
<td>14%</td>
<td>14%</td>
<td>29%</td>
<td>36%</td>
<td>7%</td>
<td>2.929</td>
</tr>
<tr>
<td>5</td>
<td>Personalization and Customization</td>
<td>14%</td>
<td>36%</td>
<td>36%</td>
<td>14%</td>
<td>0%</td>
<td>3.500</td>
</tr>
<tr>
<td>6</td>
<td>Broad functionality</td>
<td>7%</td>
<td>29%</td>
<td>50%</td>
<td>14%</td>
<td>0%</td>
<td>3.286</td>
</tr>
<tr>
<td>7</td>
<td>Availability and reliability</td>
<td>43%</td>
<td>50%</td>
<td>7%</td>
<td>0%</td>
<td>0%</td>
<td>4.357</td>
</tr>
<tr>
<td>8</td>
<td>Implementation time</td>
<td>14%</td>
<td>57%</td>
<td>22%</td>
<td>7%</td>
<td>0%</td>
<td>3.786</td>
</tr>
<tr>
<td>9</td>
<td>Security and privacy</td>
<td>43%</td>
<td>29%</td>
<td>21%</td>
<td>7%</td>
<td>0%</td>
<td>4.071</td>
</tr>
<tr>
<td>10</td>
<td>Customer Support and Training</td>
<td>7%</td>
<td>36%</td>
<td>21%</td>
<td>36%</td>
<td>0%</td>
<td>3.143</td>
</tr>
<tr>
<td>11</td>
<td>Product triability</td>
<td>14%</td>
<td>29%</td>
<td>36%</td>
<td>14%</td>
<td>7%</td>
<td>3.286</td>
</tr>
</tbody>
</table>
The means of the proposed criteria represent the average of the importance on 1-5 Likert scale as seen by the participants. According to the participants, the most important criterion is ‘Availability and Reliability’ while the most unimportant one is ‘Vendor observability’. The criteria sorted according to the means (importance) are shown below:

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Proposed Criteria</th>
<th>Mean (Avg.)</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Availability and reliability</td>
<td>4.357</td>
<td>Important &gt;4</td>
</tr>
<tr>
<td>3</td>
<td>Usability</td>
<td>4.286</td>
<td>Moderately Important &gt;3</td>
</tr>
<tr>
<td>1</td>
<td>Total Cost of Ownership</td>
<td>4.214</td>
<td>Important &gt;2</td>
</tr>
<tr>
<td>9</td>
<td>Security and privacy</td>
<td>4.071</td>
<td>Of little importance &gt;2</td>
</tr>
<tr>
<td>2</td>
<td>Scalability</td>
<td>4.071</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Vendor reliability</td>
<td>4.000</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Implementation time</td>
<td>3.786</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Personalization and Customization</td>
<td>3.500</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Vendor reputation</td>
<td>3.357</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Product triability</td>
<td>3.286</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Broad functionality</td>
<td>3.286</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Customer Support and Training</td>
<td>3.143</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Integration</td>
<td>2.929</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Vendor observability</td>
<td>2.571</td>
<td></td>
</tr>
</tbody>
</table>

Table 3 – Participants’ ratings of proposed criteria

Cronbach’s Alpha was calculated to demonstrate the reliability of the survey results. 0.734 ratio shows that the survey is at an acceptable level as the lowest limit for acceptance in Cronbach’s Alpha is 0.7 [56]. Finally, the validity analysis of the survey was carried out. Analysis of mean chart of the survey results was created to analyze the variance of the survey results by depicting the differences among participant’s answers. Thus, the control limit, the lowest decision line and upper decision line would be established to depict the validity of the results.
As observed in the figure above, the upper decision line (UDL) is set at 4.008, the lower decision line (LDL) is set at 3.277 and the control limit is 3.643. The last two criteria ‘Integration’ and ‘Vendor Observability’ are below the lower decision line and thus will be neglected in the refined general criteria.

### 5.1.3 Refined General Selection Criteria of Framework

The survey’s purpose was to validate the proposed general criteria. The proposed criteria’s importance as seen by CRM on-demand users and experts were measured and two criteria seemed of little importance to the participants which are:

- Integration with legacy applications
- Vendor observability (Successful case studies)

Furthermore, 2 of the respondents suggested that mobile accessibility should be added to the criteria which will be neglected at this point since CRM mobility will be analyzed later as a part of functional criteria.

As a result, “Integration” and “Vendor Observability” were taken out of the list to create the final general criteria list. The refined general criteria list is:

- Total Cost of Ownership
- Usability
- Availability and reliability
- Security and privacy
- Scalability
- Implementation time
- Personalization and customization
- Broad functionality
- Customer Support and Training
- Vendor reliability
- Vendor reputation
- Product triability

### 5.2 Functional Selection Criteria of Framework

The functional selection criteria study was carried out in detail in the sections 3.2.1 and 3.2.2. The refinement and validation of these criteria were done by investigating the functionalities of top 6 CRM on-demand solutions in SME market. The literature review study done in 2.1.1 section concerning the evolution of CRM provided the author with a guideline to deduct three core CRM functionalities which are *Salesforce Automation*, *Marketing Automation* and *Service Automation*. The other 3 pillars of CRM on-demand functionality which are *CRM Analytics*, *Extendible CRM* and *Social CRM* were deduced by investigating the top CRM on-demand vendors’ product whitepapers and technical data sheets. A summary of the 6 core pillars of CRM on-demand functionality are provided in the diagram below. The sub-functionalities entailing these pillars were presented in section 3.2.2.

<table>
<thead>
<tr>
<th>CRM On-Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
</tr>
<tr>
<td>Salesforce Automation</td>
</tr>
<tr>
<td>Sub-functionalities {Refer to section 3.2.2}</td>
</tr>
</tbody>
</table>

![Figure 10](image.png)

### 5.3 Chapter Summary

In this chapter, the evaluation framework was built. The selected papers that allowed us to form the general criteria were presented. The questionnaire method was discussed which was used to collect data from CRM on-demand experts to refine the proposed general criteria. The survey results were presented and refined general criteria were formed. The selected vendor’s CRM products’ functionality was presented and functional criteria were formed, completing the evaluation framework.
6. APPLICATION OF THE FRAMEWORK

In this chapter, the evaluation framework is applied to the selected systems. Vendor selection model is discussed and both systems are analyzed according to the general and functional selection criteria. The results of the analysis are discussed.

6.1 Selected CRM On-Demand Systems

As mentioned earlier, there are more than 40 CRM on-demand solutions in the market today [33]. Thus, choosing the right solutions for evaluation requires a certain thought process. Considering the limited scope and time limitations, only two solutions will be selected for evaluation at this point. The first and obvious selection filter is the target audience. We will consider the solutions that target the SME segment since they align with the target audience of the thesis.

According to destinationCRM.com [57], CRM market leaders for 2011 in SME segment consist of Microsoft, Netsuite, Oracle, Salesforce.com, SugarCRM, Sage and Zoho. The report indicates that Microsoft and Salesforce.com are the two top vendors in SME segment according to criteria such as company direction, in-depth functionality and customer satisfaction. Thus, Microsoft’s Dynamics Online and Salesforce.com’s CRM system will be evaluated for the thesis work. The analysis will aim to describe each solution according to the proposed evaluation framework and demonstrate that the application of the framework can actually be used in evaluation of the systems.

6.2 Application of the General Selection Criteria

6.2.1 Salesforce.com

Salesforce.com is a cloud computing company that produces web-based enterprise solutions [58]. It was founded by Marc Benioff in 1999. The company’s vision is to eliminate on-premise software and provide all-around enterprise solutions via the cloud. Salesforce.com started out with a CRM on-demand solution and enhanced its product portfolio with PAAS solutions (force.com), database solutions (database.com), third-party application solutions (Heroku) and social enterprise solutions (Radian6) since then.

Their CRM on-demand product portfolio consists of the following:

*Sales Cloud:* On-demand Sales Force Automation and marketing solution that maximizes the productivity of sales representatives.

*Data.com:* On-demand contact management solution that provides company and customer information by accessing social networks.

*Service Cloud:* On-demand customer service solution that enables call center and customer service representatives to provide support to customers via different channels.

*Chatter:* On-demand collaboration solution that enables geographically dispersed Salesforce employees to communicate with each other.

Salesforce.com offers two other products named Radian6 (social media monitoring solution) and RemedyForce (IT help desk enhancement solution). These solutions don’t lie at the core of a CRM on-demand system however they are optional add-ons to maximize the productivity of the CRM on-demand solution. An overview of Salesforce products and architectures can be depicted below.
Salesforce.com is provides solutions to large, medium and small businesses. The company is the CRM market leader in SME segment and has won various awards for their accomplishments in midmarket and small suite CRM delivery [59]. Thus, the company’s CRM on-demand solutions align with the target audience of the thesis.

The evaluation of the system was conducted by reviewing the product information, data sheets, demos and whitepapers found on Salesforce.com website. The result of the analysis according to the general is provided below:

**Total Cost of Ownership** - Salesforce.com provides different price schemas and alternatives for their four core CRM products which are “Sales Cloud”, “Service Cloud”, “Chatter” and “Data.com”. Sales Cloud provides sales and marketing automation and Service Cloud provides customer service automation. Complemented with Chatter (online collaboration and communication tool) and Data.com (Contact management tool), the CRM on-demand solution becomes complete. Enterprises that subscribe to all of these products would be faced with an expensive solution set compared to competitors. So, it’s of vital importance to investigate the requirements carefully before subscribing to the CRM solution set.

All of Salesforce.com products are offered via multi-tenant architecture which means that customers share infrastructure and don’t have to pay for upgrades. Thus, there are no hidden costs after purchase apart from the monthly subscription fee. Furthermore, there are no initial set up costs unless the company requests extra implementation and consultancy from Salesforce.com. Implementation prices differ and decided upon request.

Sales Cloud: SFA module includes five versions with different prices and functionalities [60]. The versions and prices are:

- **Contact manager**: 2 $ / month per user up to 5 users. The edition provides basic contact management, task tracking, email integration and customizable reports.
- **Group**: 15 $ / month per user up to 15 users. Provides all features of Contact manager edition plus simple marketing and sales functionalities such as opportunity and lead management.
- **Professional**: 65 $ / month per user. The edition provides all Group edition features plus advanced CRM functionalities such as campaigns, quotes and contract management.
- **Enterprise**: 125 $ / month per user. This edition provides all Professional edition features plus customization and additional development features along with workflow management.
- **Unlimited**: 250 $ / month per user. This edition provides all previous editions’ features plus unlimited customizations, designated account support and training.
Service Cloud: Customer service automation module includes three versions with different features and prices.

- **Professional**: $65 / month per user. This edition provides basic service features such as case management, content library and social network integration.
- **Enterprise**: $135 / month per user. Provides the previous edition’s features plus web integration and customization features such as knowledge base, self-service portal, cloud console and application customizations.
- **Unlimited**: $260 / month per user. Provides all service features along with unlimited customization, applications, extra storage and designated account manager.

Data.com: Contact management tool designed to enhance sales and marketing by capturing new leads and contacts. This product is offered at $99 / month per user and provides features such as discovering business contacts, building targeted lists and importing up to 300 contacts a month.

Chatter: The social collaboration and communication tool’s basic version which includes chatting and file sharing features are offered for free for enterprises subscribed to Service and/or Sales Cloud. Chatter Plus version is offered at $15 / month per user. The plus version includes all the basic chatter edition’s features plus workflow, dashboards, customized applications and add-ons.

**Usability** – Reviewing demo materials and free trials demonstrate that Salesforce.com modules are user-friendly, easy to grasp and resembles popular social networks websites particularly facebook.com.

There are customizable tabs that allow easy navigation through different modules of the entire CRM on-demand suite. Snapshots of each user’s summary and performance are viewed when logged in the system. Chatter allows collaboration and communication within the enterprise and has a similar interface to facebook.com. Data.com gathers individual network information from social networks and presents a map to the related individual. Salesforce.com mobile versions have the same user interface which eliminates any learning curve. The users also have access to help and training documents from their Salesforce.com account homepage.

Salesforce.com is compatible with Internet Explorer, Mozilla Firefox and Google Chrome browsers for PC users, and Safari browser for Mac users. [79] The company recommends Mozilla Firefox for the optimum performance. A snapshot of Salesforce.com is included in the appendix for the reader’s information.

**Availability and Reliability** – According to the information on Salesforce.com website [61], the company ensures 99.9 percent uptime based on the previous customer deals. The company has various geographically dispersed data centers in USA and Asia in which all customers’ data and transactions are mirrored. This means that if a data center fails in one location, the service availability is ensured by the operation of alternative data centers.

**Security and Privacy**- Salesforce.com has established a transparent approach to system status, security and privacy of their solutions. They publish the related information regarding these issues on their website to ensure trustworthiness [62]. The company ensures data security by deploying secure data transmission using SSL 3.0, network protection by utilizing perimeter and internal firewalls and has disaster recovery and backup systems. The privacy is ensured by complying with international and country-specific privacy laws. Furthermore, the company has various privacy certificates such as TRUSTe Certified Privacy Seal and global audit compliance certificates (ISO 27001 and SysTrust) [63].
Scalability- Since CRM on-demand solutions work on a user subscription basis, the system scales up as the customers pay for more user subscriptions. The revenue gained from these subscriptions is used by Salesforce.com to invest in more data centers, allowing scalability. Each product in Salesforce’s portfolio supports unlimited subscriptions which allow the enterprises to add more users as they expand.

Furthermore, the company declares that nearly 10 billion transactions run on Force.com in which the CRM applications reside, for more than 100,000 enterprises which prove the infrastructure scalability [82].

Implementation time – Salesforce.com doesn’t provide any guaranteed timeline on how much time it will take to rollout a certain project. As each customer’s requirements and scope are different, the implementation times will differ. However, customer success stories provide timelines that can be used as guidelines.

A small enterprise called “AtHomeNet” that operates in North America, implemented Sales Cloud and Service Cloud in approximately 2 months for 45 users [76]. Furthermore, a medium sized enterprise named “BakBone” implemented Salesforce Enterprise edition including sales, marketing and service cloud modules in approximately 5 months [77]. Furthermore, the company has consultancy partners that accelerate implementation times such as Innoveer Solutions [78]. Salesforce.com also provides free trainings and documentation about best practices regarding rollout in their website [64].

Personalization and customization- Salesforce.com has customization and personalization in various editions. Sales Cloud and Service Cloud’s professional, enterprise and unlimited editions allow the users to create integrated customizable dashboards and applications.

Salesforce.com customers also have access to AppExchange [65], an online cloud-computing marketplace in which various applications are shared. Users can buy paid applications or simply install free applications. Furthermore, Salesforce.com customers can access developers or Salesforce.com partners to outsource their add-on development needs.

Broad Functionality- Salesforce.com has a massive product portfolio including sales and marketing automation (Sales Cloud), customer service automation (Service Cloud), business contact management (Data.com), IT help desk optimization (Remedy Force), social media monitoring (Radian6) and online collaboration (Chatter).

The detailed CRM on-demand functionality analysis will be done later on in this chapter.

Product Triability- Salesforce.com offers 30-day trials to enterprises for Sales Cloud, Service Cloud and RemedyForce products. Chatter is offered for free to subscribers of Sales Cloud and/or Service Cloud products. These free trials enable potential customers to test the solutions before they purchase them.

Customer Support and Training- Salesforce.com has various customer support and training packages. Customers subscribed to one of Salesforce.com products have access to the “Standard Success Plan” that includes online case submittal, phone support and access to knowledge base. Enterprises that need extra support and training can subscribe to “Premier Success Plan” by paying an extra subscription fee [66]. This plan includes decreased response time to cases, case prioritization, a designated support manager and access to online training courses.
Furthermore, Salesforce.com offers certification training modules for different stakeholders at the customer, namely end users, administrators, implementers and developers. The company argues that the customers, who subscribe to these training modules, have higher success rates in user adoption and sales pipeline [67].

**Vendor reliability-** This criterion corresponds to ensuring business continuity and contingency planning in this context. Salesforce.com doesn’t directly have guaranteed business continuity and risk management as clauses in Service Level Agreements. They create customer trust by being transparent about the system status (down and up-times) by publishing real time system information on their website [62].

On the other hand, customers can subscribe to a third-party application named “CloudAlly Backup for Salesforce” which is an online backup tool to prevent loss of their critical data[68]. This paid application takes daily backups of customer data in Salesforce.com and restores data if required. Thus, customers can access their critical data even if Salesforce.com goes out of business.

**Vendor reputation-** This criterion corresponds to brand value and market share of the company. Salesforce.com has 14.7 percent CRM market share [69] as of 2011. Even tough, the company is third behind SAP and Oracle in terms of overall CRM market share; they are the market leader in CRM on-demand SME segment [57].

Furthermore, the company is listed as one of the “Forbes Global 2000 Leading Companies” with $1.7 billion sales, $64.5 million profit and a market value of $16.8 billion [70].

### 6.2.2 Microsoft Dynamics On-Demand

Microsoft was founded in 1975 by Bill Gates and Paul Allen [71]. The company started out by producing a microcomputer and evolved to become one of the leading software providers in the world. As of today, the company has a broad product portfolio; including browsers, office suites, operating systems, games, communication tools, cloud computing applications and enterprise applications.

Microsoft’s CRM solution is named “Microsoft Dynamics” and deployed either on-premise or on-demand according to the customers’ requests. The company provides “Microsoft Dynamics CRM Online ” in 40 countries via certified partners [72]. Microsoft Dynamics is offered in various industries and adopted by companies of different sizes. Since the company’s on-demand CRM solution is relatively new [73], they have chosen to implement an aggressive pricing strategy to compete with other vendors and gain market share. The CRM on-demand solution consists of 3 modules:

**Sales:** On-demand sales force automation solution that optimizes sales activities with integration of Microsoft Office and Outlook.

**Marketing:** On-demand marketing automation solution that optimizes marketing activities and opportunities.

**Customer Service:** On-demand customer service solution that provides a complete case management and customer support capabilities.

Furthermore, Microsoft Dynamics Online offers a fourth module named “Extended CRM” which includes customization via third-party applications, access to partner network, marketplace and advanced workflow along with system management tools.
The evaluation of the system was conducted by reviewing the product information, data sheets, demos and whitepapers found on Microsoft Dynamics website. The result of the analysis according to the general criteria is provided below:

Total Cost of Ownership - Microsoft Dynamics CRM Online is currently available for enterprises in 40 countries, as mentioned above. The company works on a license-based model for pricing purposes. There are currently 3 license models for Dynamics CRM Online [74]:

User subscription license: This model allows the user to access the CRM system with read and write capabilities.

Step-up subscription license: This model allows the customers who already have subscriptions to previous Dynamics CRM on-premise or on-demand versions to upgrade their system at a lower price.

Additional storage add-on: Enterprises in need of additional storage space to utilize with Dynamics CRM Online can purchase additional storage.

A user subscription license for one user/month is currently priced at $ 44. However, the promotion which lasts until end of 2011 allows users to buy this license for $ 34. All CRM features including sales, marketing, workflow management and offline access are granted per license. There are no additional upgrade fees as Dynamics CRM online has a multi-tenant architecture. 5 GB of storage space, customer support and training is also included in the license price. For each additional 1 GB of storage, the enterprise can purchase the additional storage add-on license at a price of $9.99 per month.

Usability - Microsoft Dynamics Online has an easy-to-use and intuitive interface that resembles other Microsoft desktop applications such as Microsoft Office. The system is initiated with a workplace module when a user signs in. There’s an overview of daily activities such as data imports, calendar and appointments, reports, overall dashboard, announcements and feature overview on the left pane. The left-bottom pane allows navigation through different CRM modules such as sales, marketing and service applications as well as settings management. The resource center allows the user to find training documentation, access to the knowledge base, downloads and user community. Thus, the user can easily educate him/her on how to use Dynamics Online.

At the moment, Dynamics Online supports only Internet Explorer version 6 and higher. However, Google Chrome and Mozilla Firefox users can access the system via browser add-ons. [78] Mac users can only access the system by purchasing a virtual Windows machine license. Microsoft plans to provide cross-browser compatibility with updates that will be provided in 2012. A snapshot of Dynamics Online is provided in the appendix for the reader’s information.

Availability and reliability - Microsoft guarantees % 99.9 uptime as stated via conditions in Service Level Agreements signed with the customers. Furthermore, the monthly subscription fee is partially or fully refunded to the customer for the months that the service availability drops below %99.9 [75]

The reliability of the service is ensured by monitoring, backup and recovery services by the certified Microsoft partners which don’t require extra fees. In quarter 4 in 2011[88], Microsoft invested in disaster recovery systems dispersed in US, EMEA and Asia regions which will ensure system reliability in the case of failures in data centers.

Security and privacy – Microsoft ensures customers’ data privacy by an agreed statement named “Microsoft Dynamics CRM 2011 Privacy Statement” [81]. The company has various privacy compliance certificates including TRUSTe certification which creates trust among customers subscribed to online solutions on a global scale.
Data security is ensured by various features such as secure web connections through SSL, customization and access restriction according to user roles, identity management via Microsoft Live ID, field level security that allows user control on a record level, data auditing (tracking changes on the system) and physical security of data centers via disaster recovery management and data backups.

**Scalability**- Microsoft cooperated with Intel Corporation for benchmark testing regarding performance and scalability of their Dynamics CRM 2011 solutions (on-premise and on-demand versions).

According to the results published in the company’s website in March 2011, the system supports 150,000 concurrent users performing transactions every 8 minutes and utilizing less than 50% of the servers that the database and CRM system reside on. Hence, these ratings demonstrate that Dynamics Online system can be scaled to be utilized by enterprises of various sizes.

**Implementation time**- Microsoft delivers Dynamics Online implementations via certified partners and rollout time varies according to the project scope. Thus, there’s no guaranteed implementation time offered by the company. However, customer case studies provide some insight regarding rollout time. A medium sized media company named Viatech unified their customer and sales management systems by deploying Dynamics Online. They worked with a Microsoft partner for integration, configuration and customization of the system and the system was functional in 90 days.

**Personalization and customization**- Microsoft Dynamics Online enables personalization and customization via personal view, personal options and custom e-mail templates. Users can modify the panes according to their needs, choose various custom email templates and modify options such as time zone and calendar view. Moreover, users can create customized dashboards with Dynamics Online 2011 version. Furthermore, Dynamics Online customers have access to ‘Microsoft Dynamics Marketplace’ to purchase add-ons to their CRM suite for further customization purposes.

Microsoft has also various certified partners in 41 countries that provide extra customization services to customers if required.

**Broad functionality**- Microsoft Dynamics Online has a broad range of functionalities including sales, marketing and service automation along with advanced customization features including third-party application support, marketplace and access to partner network. The detailed functional analysis will be carried out in the next sub-chapter.

**Customer Support and Training**- Microsoft offers customer support and training via various channels. The customer has access to the online resource center where e-learning through online videos, manuals and books are provided. Furthermore, the customer can also get self-support through knowledge base that provides solutions to commonly encountered problems.

Furthermore, customers can request a designated administrator who will be assigned to the related customer account and will support them to solve their problems. Customers can also get product training which is offered for each CRM module. Finally, there are 4 support plans that can be purchased in which customers get extra support through certified Microsoft partners. Purchasing these extra support packages provides benefits such as faster response times to open cases, improved support timelines and designated support representative. The pricing schemas vary for different countries and thus Microsoft services should be consulted to purchase these support packages.

**Vendor reliability**- A user subscription license purchased with Microsoft Dynamics online provides the customer with backup and disaster recovery services. Furthermore, Microsoft invested in regional data centers to improve disaster recovery services in 2011 quarter 4 release. Microsoft certified
partners can be consulted to take daily backups of critical CRM data stored in Microsoft SQL server for further protection and business continuity.

**Vendor reputation** - Microsoft has 7.9 percent of CRM market share as of 2011[69]. The company is placed fourth behind SAP, Oracle and Salesforce.com. Even tough, the company is fourth behind SAP Oracle and Salesforce.com in terms of overall CRM market share; they are placed second in CRM SME segment considering the affordable price, company direction, customer satisfaction and broad functionality [57].

In terms of brand value, Microsoft is 50th among “Forbes Global 2000” company list with $20.6 billion profit and $215.8 billion market value [70].

**Product triability** - Microsoft offers 30-day free trials for the whole Dynamics Online suite. Any individual within an enterprise can subscribe to the trial and thus can get hands-on experience before making an informed decision to purchase the product. The trial is available for enterprises for 40 countries in 41 different languages.

### 6.3 Application of the Functional Selection Criteria

The proposed functional criteria created in section 4.2.2 will be used to analyze the functionalities of CRM on-demand solutions offered by Salesforce.com and Microsoft. The main six pillars of CRM on-demand and the functionalities they include are matched to each system. The analysis was done by reviewing demo materials, free trials and fact sheets offered by the vendors.

Both systems provide the core CRM functionalities to their customers as depicted in table 6. However, there are some differences and limitations of various functionalities for each system. Therefore, the results of functional analysis need further discussion and investigation. We will investigate each CRM pillar in detail for both systems. The quantitative ranking system previously mentioned in the methodology is provided as a separate table below for the audience’s information.

<table>
<thead>
<tr>
<th>Quantitative Ranking</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td><em>The functionality is thoroughly included in the solution</em></td>
</tr>
<tr>
<td>Limited</td>
<td><em>The functionality is covered to a certain extent in the solution</em></td>
</tr>
<tr>
<td>-</td>
<td><em>The functionality is omitted in the solution</em></td>
</tr>
</tbody>
</table>

*Table 5 – Functional Criteria Ranking System*
Salesforce Automation - Salesforce.com’s Sales Cloud offers more functionality compared to Microsoft’s Dynamics Online. Both systems provide lead and opportunity management, sales forecasting, account and contact management, quote and contract management, process management, document management and sales analytics.

<table>
<thead>
<tr>
<th>Pillar</th>
<th>Functionality</th>
<th>Salesforce.com</th>
<th>Microsoft Dynamics 2011 Online</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sales Force Automation</strong></td>
<td>Lead and Opportunity Management</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>Sales Forecasts</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Account and Contact Management</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Quote and Contract Management</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Partner Management</td>
<td>✔</td>
<td>Limited</td>
</tr>
<tr>
<td></td>
<td>Process Management</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Document Management</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sales Analytics</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mobile Sales</td>
<td>✔</td>
<td>Limited</td>
</tr>
<tr>
<td><strong>Marketing Automation</strong></td>
<td>Campaign Planning and Execution</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lead Management</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Email Marketing</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Marketing Analytics</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Marketing Workflow</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Data imports</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Customer Segmentation</td>
<td>✔</td>
<td>Limited</td>
</tr>
<tr>
<td></td>
<td>Internet Lead Capture</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td><strong>Customer Service Automation</strong></td>
<td>Call Center</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Solution Knowledge Base</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Self-service Portal</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Case Repository and Management</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Service Contract Management</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Media Service</td>
<td>✔</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Real Time Agents</td>
<td>✔</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Service Process Management &amp; Workflows</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Service Analytics</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mobile Service</td>
<td>✔</td>
<td>Limited</td>
</tr>
<tr>
<td><strong>CRM Analytics</strong></td>
<td>Real-time Reports and Dashboards</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Historical Reports and Dashboards</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Customizable Reports</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td><strong>Social CRM</strong></td>
<td>Social Media Integration</td>
<td>✔</td>
<td>Limited</td>
</tr>
<tr>
<td></td>
<td>Email Integration</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Online Conferencing</td>
<td>✔</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Internal Communication</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Document Collaboration</td>
<td>✔</td>
<td>Limited</td>
</tr>
<tr>
<td></td>
<td>Social Media Monitoring</td>
<td>✔</td>
<td>Limited</td>
</tr>
<tr>
<td><strong>Extendible CRM</strong></td>
<td>Partner and Re-Seller Network</td>
<td>✔</td>
<td>Limited</td>
</tr>
<tr>
<td></td>
<td>System Management</td>
<td>✔</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Third-party Applications</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Customizable and Dynamic Architecture</td>
<td>✔</td>
<td>-</td>
</tr>
</tbody>
</table>

*Table 6 – Functionalities of selected systems*
Dynamics Online treats partners as accounts and therefore doesn’t provide any additional functionality in channel management to increase sales and marketing channels. The user can create a partner, the same way as creating an account. On the other hand, Sales Cloud has a separate ‘Partner Channel Management’ module which allows partner recruitment, classification and training. The enterprises can share leads externally to partners, share information with partners, create a partner community and investigate the success of the partners via dashboards. Salesforce.com charges extra fees for the utilization of the partner management module for each added partner [87].

Both systems offer mobile applications that run on mobile devices. However, Salesforce.com supports a broader range of devices compared to Dynamics Online. Sales Cloud can be installed to various IPhone versions (3G, 3GS, 4, 4S), IPad (1, 2), Blackberry (series 81xx up to 99xx) and Android phones as beta version. On the other hand, Microsoft Dynamics Online 2011 can only be installed on Windows 7 phones as of quarter 4, 2011.

**Marketing Automation**— Microsoft Dynamics Online 2011 offers more marketing functionality compared to Salesforce.com’s Sales Cloud. Both systems provide campaign planning and execution, lead management, email marketing, marketing analytics, marketing workflow, internet lead capture and data imports.

Dynamics Online allows the business user to create targeted campaign lists and customer segments by writing queries to retrieve customer information without technical database knowledge. On the other hand, Sales Cloud has a concept named ‘picklist’ in which the user can choose the criteria to filter customers for targeted campaigns. Thus, Dynamics Online’s customer segmentation is more advanced compared to Sales Cloud.

Salesforce.com supports files with .CSV (comma-delimited Excel files) extension for importing data such as contacts, contracts and accounts. Sales Cloud users can subscribe to a third-party application named ‘Apex Data Loader’ for more advanced data importing that allows visualized data mapping and scheduling [88]. On the other hand, Dynamics Online users have the option to import files with .XML, .CSV, .txt and .zip extensions and create data mapping with existing templates. Thus, Dynamics Online offers more flexible data importing functionality.

**Customer Service Automation**— Salesforce.com’s Service Cloud offers call center functionality in addition to customer service and support modules while Dynamics Online has only customer support and service functionality. Both systems provide solution knowledge base, self-service portal, case repository and management, service contract management, service process management & workflows and service analytics.

Service Cloud provides integrated call center functionality for customer service agents to receive incoming calls from customers within the system. The company collaborates with Cisco and 80 other CTI (Computer Telephony Integration) providers for integrated call center solutions [89]. Service Cloud also provides cross-channel service support including social networks, email, phone and chat support. Real-time agents allow the customer to get real-time support from an agent via real-time chat.

On the other hand, Dynamics Online doesn’t provide call center functionality and real-time agents, thus service agents need to manage cases disparately from their call center modules. This service management module offers more functionality to a service manager, rather than a service agent. The service managers can get an overview of cases, manage their service personnel and assign tasks to service agents.
**CRM Analytics** - Both systems provide historical and real-time dashboards along with customization capabilities. Microsoft Dynamics Online provides dashboards for managers that are interested in summary of activities and KPIs for sales, marketing, customer service modules. Furthermore, customers can create custom dashboard using the dashboard designer to receive real-time information about CRM data. Furthermore, various report templates are available for users to create reports on a regular basis about various activities such as account overview, sales pipeline, campaign performance, case overview and etc.

Salesforce.com also offers customizable report creation via drag-drop designer, real-time and historical dashboards and module overview dashboards. Furthermore, social channel information is gathered to view the success of social customer service via dashboards.

**Social CRM** - This pillar enables enterprises to utilize the conversations, contact information and discussions on the internet to maximize their customer service, sales and marketing activities, thus increasing revenue and customer satisfaction. Salesforce.com offers more enhanced social CRM capabilities compared to Microsoft Dynamics Online.

Both systems provide social media integration which means they access facebook, linkedin and twitter to gain customer insight, contact information and follow the discussions about their products over the internet. Microsoft partners with Insideview [90] to provide an integrated social CRM perspective to Dynamics Online users. The sales representatives can view mutual social connections of their potential customers and follow their conversations to leverage any useful information about them.

Salesforce.com offers more enhanced social media integration via built-in tools. The contacts’ published information including photos and conversations on Facebook, Linkedin and Twitter are viewed within Salesforce.com via a single interface. Furthermore, Data.com provides real-time contact information which enhances Salesforce.com’s social media integration capabilities.

Both systems provide email integration capabilities. Microsoft Dynamics Online 2011 can be more appealing to enterprises using Microsoft Outlook as the CRM system can be accessed directly from within Microsoft Outlook. Salesforce.com offers email integration for Microsoft Outlook and Lotus Notes via third-party paid applications published by Linkpoint360[91].

Salesforce.com provides web conferencing capabilities to marketing and sales professionals who would like to setup webinars with geographically dispersed customers via a third-party paid application named “iLine” [92]. On the other hand, Microsoft Dynamics Online doesn’t have any web conferencing capabilities as of December, 2011.

Internal communication and document collaboration in Salesforce.com is provided via “Chatter”, a built-in free social collaboration tool. Every employee using Chatter has their own profile, activity feed, contacts and groups. Business processes are also integrated into this application, allowing sales and marketing representatives to get approvals about quotes or decisions from their managers. Microsoft Dynamics Online provides internal communication and document collaboration via Microsoft Outlook and Sharepoint. However, the enterprises need Sharepoint licenses for more enhanced internal collaboration. Microsoft Dynamics November 2011 update provides more enhanced social collaboration capabilities such as micro-blogging; activity updates and feeds [93]. Microsoft Dynamics users can subscribe to a third-party application named “Vibe” for a simple internal communication tool that functions similarly to facebook.com
Salesforce.com’s Radian6 provides powerful social media monitoring for enterprises. The sales and marketing professionals can listen to conversations and discussions about their companies taking place in twitter, facebook, blogs and other social websites. They have the option to filter out these conversations, engage with corresponding people and transform them into leads and contacts. On the other hand, Microsoft Dynamics Online provides simpler and limited social media monitoring tool via a third-party application named “Parrot” [90]. Parrot’s social media monitoring provides listening and engaging limited to social contacts available in the corresponding individual’s network. Both tools, Parrot and Radian6 also provide a dashboard that contains an overview of the social conversations related to the company.

Extendible CRM- Both systems provide third-party application marketplace for enhanced CRM functionality and a partner network. Microsoft’s Dynamics Online offers more comprehensive miscellaneous functionality by the help of extensive partner network, scalable and dynamic architecture and third-party applications marketplace.

Partner and reseller network is important for a customer to get customizable CRM functionality, industry expertise and more personal support and training. Microsoft has an extensive global partner network that specializes in different Microsoft products including Dynamics Online. There are 14 Microsoft partners in Stockholm, Sweden [94] and much more dispersed around the globe.

Salesforce.com has a less extensive partner network as the company is relatively younger compared to Microsoft. They have approximately 17 consulting partners that serve the enterprises in Sweden [95].

Microsoft Dynamics Online customers have the ability to switch between different deployments of data centers; on-premise and on-demand or multi-tenant and single-tenant. The administrators also have the ability to customize server configurations and manage applications. Thus, Dynamics Online provides system management and customizable architecture as opposed to Salesforce.com’s CRM solution.

Salesforce.com’s AppExchange is a marketplace that unites enterprises in need of third-party applications with developers and custom applications. According to Salesforce.com, there are currently more than 1000 applications and 170 developers that enterprises can access [96].

Salesforce’s Force.com provides a platform for developers that want to build applications for Salesforce thus maximizing the opportunities for enterprises using Salesforce’s products. On the other hand, Microsoft also provides Microsoft Dynamics Marketplace for custom applications and a platform called “Azure” for developers to build applications on the cloud.

6.4 Chapter Summary

In this chapter, the vendor selection model was discussed for the application of the framework. Salesforce.com and Microsoft’s Dynamics Online systems were selected for evaluation. Both systems were evaluated using content published on their websites and free trials. The results of the evaluation were presented and discussed to a certain extent. Further discussion will be presented in the next chapter.
7. CONCLUDING REMARKS

This chapter provides a summary of discussion of the results and limitations along with conclusion and future work.

7.1 Discussion

CRM is a business wide strategy that affects many aspects in an enterprise such as business processes, organizational structure and technology. It’s of vital importance to include all departments in an enterprise along with the management board to set up an enterprise-wide CRM strategy. The CRM strategy, in many cases entail from the enterprise’s vision and strategy. Defining a CRM strategy is even more vital for enterprises that value customer satisfaction and service stated in their mission or vision. Thus, prior to making a decision about the various deployment models of CRM (CRM on-premise vs. CRM on-demand) and choosing a CRM vendor, the various studies discussed in section 3.1.2 needs to be investigated. An enterprise needs to define an enterprise-wide CRM strategy, align the organizational structure and business processes along with ensuring that the management is aware of these activities. Only after these steps, an enterprise can make decisions regarding the CRM deployment, technology and CRM vendors making the research in this thesis relevant and valuable.

CRM on-demand systems are more suitable for SMEs as stated previously because of their cost-effectiveness, deployment speed and broad functionalities. Large enterprises may be more skeptic in adopting this technology because of integration and software maturity issues. Large enterprises may require the CRM system to be integrated with their ERP and accounting systems to have a holistic control of their business. Furthermore, since CRM on-demand systems inhibit relatively new technologies, thus the maturity of these systems may cause large enterprises to wait for competitors to adopt it before they do. In this case, CRM on-demand vendor’s observability (successful case studies) plays an important role to decrease the effect of this skepticism. For SMEs, these issues are of less importance as the research indicates. Thus, SMEs seem more open to take risks in adopting CRM on-demand technology because of advantages such as fast implementation time, availability and reliability, usability and decreased total cost of ownership.

In our data collection to create the framework, the general criteria that were formed for initial part of the framework required extensive literature review about SaaS selection criteria, software selection criteria and quality attributes for innovation adoption. Since there were many academic articles regarding these subjects, the general criteria were formed with ease. The questionnaire method was utilized to refine these criteria by collecting data from CRM on-demand users and experts. Since the proposed framework is not limited to any country-specific situation, the self-administered email survey method was used. The only disadvantage of this method was the low response rate of % 12 however this non-response bias was expected initially. The alternative methods such as field study, structured interviews were considered however they were ruled out because of entailed costs and the global nature of the research. As an advantage, the self-administered web survey method allows the respondents to complete the task at their own convenience which allows flexibility and allows the researcher to receive answers from experts that are globally dispersed. The functional criteria were formed by analyzing six CRM on-demand systems’ functionalities. The solutions of vendors that were market leaders in SME segment were chosen as the target audience dictated.

In our data analysis, two CRM on-demand systems were selected to apply the proposed framework. The general criteria and functional criteria analysis was completed by desktop research which included reviewing data sheets, tutorials, videos, white papers and free trials offered by these vendors.
Regarding the general criteria analysis, both systems offer enough material to analyze the criteria to an extent. However, ‘implementation time’ criterion needs further investigation and depends on the requirements of the customer even though some information can be deduced from previous customers’ case studies. Furthermore, ‘vendor reliability’ which concerns business continuity requires the SMEs to collaborate with external partners of Salesforce and Microsoft to ensure the backup and restore of critical CRM data in case of a disaster possibility. Thus, the costs and reliability of these external partners need further investigation. Finally, criteria such as ‘availability and reliability’ and ‘customer support and training’ require SMEs to work with the vendor on a long-term basis to get a further insight on these criteria. Desktop research is limited in acquiring thorough information about these criteria.

The second part of the framework, the functional criteria was applied to the selected systems for completion of the analysis. Free trials, demos, data sheets and videos were accessed for this purpose. Salesforce.com CRM and Microsoft Dynamics Online both inhibit the core CRM functionalities which are sales, marketing and service modules that make them valid choices for SMEs. Dynamics Online offers more functionality in “Extendible CRM” such as flexible architecture and strong partner network, where as Salesforce offers more enhanced social and mobile CRM along with call center functionality that enhances customer service pillar. Further discussion about the limitations and advantages of the systems will be mentioned in the next sub-section. As a final note regarding the functional criteria, the last pillar named “Extendible CRM” includes some functionality that can also be considered as a part of the general criteria. ‘Partner and Re-seller network’ and ‘Customizable and Dynamic Architecture’ are not exactly system functionalities however they affect the functionality of these systems by enabling the extension of CRM with customizable functionality offered by the partners and architecture that allows the system to deployed as a single or multi-tenant nature. Thus, the extendible CRM pillar can be considered part of the general and/or functional criteria.

7.2 Conclusion

The goal of this thesis was to propose a framework for CRM on-demand system evaluation, especially for SMEs that need guidance in choosing a cost effective and reliable CRM on-demand solution among the various systems in the saturated CRM on-demand market. A proposed framework was built by qualitative and quantitative data collection and analysis methods. Initial part of the framework was further validated and refined using the self-administered web survey method that was distributed to CRM on-demand users and experts in SMEs. The validated general criteria, converged with the functional criteria formed the evaluation framework which later was applied by evaluating Salesforce.com CRM and Microsoft CRM Dynamics Online systems.

The purpose in the research was to address three major research questions. As the proposed framework was built, general criteria and functional criteria were defined which refers to the first question: “What are the evaluation criteria for CRM on-demand system selection?” The criteria were defined for SMEs which are the main target audience for the thesis.

The evaluation framework consists of the general criteria, which refer to all the criteria except for functionalities and the functional criteria which refer to the specific CRM system functionality. Furthermore, the framework can be enhanced to include a guideline about setting up a CRM strategy prior to CRM on-demand system selection by referring to the previous studies about successful CRM implementations mentioned in section 3.1.2. By combining these three subject areas, the evaluation framework is formed to address the second research question: “How can an evaluation framework be formed for managers in SMEs to make a decision among CRM on-demand systems?”
The evaluation of the chosen systems allowed the researcher to gain insight about various limitations and advantages of Salesforce.com and Microsoft Dynamics Online. The detailed results of the analysis about the systems are found in chapter six. The application of the framework carried out in chapter six addresses the third research question which was: “How can the framework be applied to CRM on-demand solutions?” The general selection criteria are applied qualitatively using the documentation technique. The functional selection criteria are applied quantitatively using a functionality matrix. As an extension of the results of this study, we will also mention the differences between Salesforce.com and Microsoft Dynamics Online as well as the limitations of the systems.

Salesforce.com CRM has broader functionalities compared to Microsoft Dynamics Online. The system offers enhanced mobile and social CRM capabilities along with embedded call center functionality compared to Dynamics Online. However, Salesforce.com has more expensive subscription fees. The customers need to subscribe separately for Service and Sales Cloud modules increasing the total cost of ownership. Furthermore, the third-party applications and customizations require further fees. On the other hand, Microsoft Dynamics Online offers all CRM functionality with a single monthly-subscription fee. Salesforce.com is more transparent regarding security, availability and reliability issues. They publish the information about system status, maintenance times and previous problems on their website. Microsoft addressed these issues by including service clauses in Service Level Agreements signed with the customer.

Both vendors are reputable and among the Global 2000 company list making their brand reputation high. However, Salesforce.com is the market leader in CRM on-demand SME segment while Microsoft is third behind Salesforce and Oracle.

Microsoft has a much bigger partner network all around the world as the company is more mature compared to Salesforce.com. Thus, Microsoft partners increase the customization possibilities and give the company an edge in customer support and training. Furthermore, Microsoft offers both CRM on-premise and CRM on-demand deployment options to their customers while Salesforce.com only has the on-demand option. On a final note, Microsoft Dynamics can be accessed within Microsoft Outlook which can make it attractive to enterprises already using Microsoft Outlook.

Further limitations of CRM on-demand solutions in the market are ‘country availability’ and ‘language support’. Since CRM on-demand technology is less mature than CRM on-premise, current vendors in the market provide solutions to limited countries and languages. Furthermore, specific functionalities and customizations require the enterprises to collaborate with CRM on-demand vendor’s partners which may create customer discontent depending on the quality of service. In this case, certain clauses should be created in the service level agreements regarding quality of service before subscribing to the CRM on-demand system.

### 7.3 Future work

The proposed has some limitations regarding the functional criteria. The functional criteria of the evaluated systems are valid as of December 1, 2011. The possible system upgrades after this date are not reflected in this research. Thus, the proposed framework needs to be updated by other researchers that are willing to pursue related work in the future. Furthermore, the proposed framework is an initial version that needs to be tested in various cases to increase the validity.

Several approaches are suggested for future research. The evaluation framework can be applied to large enterprises in the future as there are other criteria to consider which may vary according to the
business dynamics of a large enterprise. In that case, the questionnaire or interview method can be applied to the decision makers and CRM experts in large enterprises for data collection and validation.

The proposed framework was applied to evaluation of only two systems because of the time limitations. More vendors’ systems can be included in the evaluation in order to test the framework in a broader sense. Furthermore, the evaluation framework can be improved and tested in specific case studies for enterprises in the verge of making a decision to purchase CRM on-demand solutions. In that case, the business requirements of the enterprise in the case study can be mapped to CRM on-demand functionality that is offered by the vendors and investigation of the appropriate systems could be carried out.

Since, each country has unique CRM market dynamics, the evaluation framework can also be tailored to a specific country or region. In that case, structured interviews can be carried out to meet with CRM experts in that specific region to analyze the situation and define the criteria for evaluation.

Finally, the evaluation and validation study of the framework built in thesis can also be pursued by other researchers.
REFERENCES


APPENDIX

A - SURVEY QUESTIONS

Assessment of CRM On-Demand

You are invited to participate in our survey "Defining the criteria for the assessment of CRM on-demand products before purchase". It will take approximately 5 minutes to complete the questionnaire. Your participation in this study is voluntary but crucial as it will serve to contribute to the scientific knowledge base. The study is done by a researcher in KTH University based in Stockholm, Sweden. Your survey responses will be strictly confidential and used only for academic purposes. If you have any questions about the survey, feel free to contact the researcher by email: ozcanli@kth.se

Thank you very much for your time and support. Please proceed with the survey below.

P.S. The survey is intended to prioritize general criteria for CRM on-demand package selection. The specific CRM functions will be evaluated separately.

Full Name (Optional)

Company *

Position *

Industry *

Size of the enterprise *
- 1-10(Micro)
- 10-50(Small)
- 50-250(Medium)
- 250+(Large)
- I am not sure
### CRM on-demand selection criteria

Please choose the importance of the following criteria to identify their effect in deciding CRM on-demand packages for your company.

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Please provide additional criteria that you think should be added to the list above (Anything other than CRM specific functionality)

Further Comments/Suggestions

Thanks for your participation!
B - SYSTEM SNAPSHOTS

Salesforce CRM (retrieved from free trial version)

Microsoft Dynamics Online (retrieved from free trial version)

C - SURVEY RESULTS
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<tr>
<td><strong>Broad functionalities</strong></td>
<td>Important</td>
<td>Important</td>
<td></td>
</tr>
<tr>
<td><strong>High availability and reliability</strong></td>
<td>Very important</td>
<td>Very important</td>
<td></td>
</tr>
<tr>
<td><strong>Rollout time</strong></td>
<td>Important</td>
<td>Moderately important</td>
<td></td>
</tr>
<tr>
<td><strong>High data security and privacy</strong></td>
<td>Very important</td>
<td>Very important</td>
<td></td>
</tr>
<tr>
<td><strong>Customer support and training</strong></td>
<td>Moderately important</td>
<td>Important</td>
<td></td>
</tr>
<tr>
<td><strong>Free trials offered before purchase</strong></td>
<td>Of little importance</td>
<td>Moderately important</td>
<td></td>
</tr>
<tr>
<td><strong>Domain knowledge</strong></td>
<td>Of little importance</td>
<td>Of little importance</td>
<td></td>
</tr>
<tr>
<td><strong>Vendor's reliability and business continuity</strong></td>
<td>Important</td>
<td>Moderately important</td>
<td></td>
</tr>
<tr>
<td><strong>Vendor reputation</strong></td>
<td>Moderately important</td>
<td>Important</td>
<td></td>
</tr>
<tr>
<td>(Brand value, market share)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Any additional criteria</strong></td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
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