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A FRAMEWORK FOR POST IMPLEMENTATION EVALUATION OF eCRM IN TELECOMMUNICATION SECTOR: THE CASE OF ORANGE

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2012

Submitted in Partial Fulfillment for the Award of Degree of Master of Science in Information Systems of the University of Nairobi

DECLARATION

STUDENT

I, the undersigned, declare that this project is my original work and that it has not been presented in any other university or institution for academic credit.

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This research project has been submitted for examination with my approval as university supervisor.

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Acknowledgement

As the old adage goes, the long journey of a thousand steps begins with one step, for me to have moved these many steps in this research, sincerely, many people have sacrificed their time and patience, without whom, the a thousandth step might still just be a mirage today.

First and foremost, I give thanks to almighty God who has been gracious to me throughout the research project period, for good health comes from Him, Amen!

Next I owe my Supervisor Mr. Ogutu and all the panel one members, starting with the Chairman, Muchemi, Mr. Moturi, Prof. Waiganjo and Dr. Orwa unparalleled gratitude and hold them all in high esteem for their valued input, insight and guidance that has brought me this far and made me appreciate academic research as a rewarding experience.

I also acknowledge Mr. Griffin Ajisanga, who has assisted me with printing of the documents without tiring, God bless him.

Last but not least, my wife Josephine and Sons Isaac and Victor that have been on my side during the entire period and sacrificed a lot to give me moral support.

ABSTRACT

Customer Relationship Management (CRM) systems aid organizations in managing customer interactions more effectively and efficiently. Like many new technologies, CRM has been accompanied by vendor hype and stories of implementation failure. Telecommunication companies are playing a key role in generation of capital that is injected in world economies. In light of this, eCRM is a technology whose time has come and many organizations view it as a tool which comes with competitive advantage as well as a boost to their financial capabilities.

Since telecommunications companies inject colossal sums of money in automation of their processes, it calls for concerted efforts to ensure that the newly inaugurated projects do not fail. This calls for extreme care not only during project implementation stage, but also implementation process which determines the success or failure of the entire project. eCRM technology, having been embraced in recent years, and more so in developed countries, there is need for more theoretical understanding of implementation frameworks that suits implementation of eCRM systems in developing countries.

The main objective of this research is to come up with a framework for eCRM implementation in telecommunications' companies in developing countries, as existing ones were designed for developing nations. The other three objectives are to investigate the effects of Institutional Influence, Peer Influence and Supervisory Authority Influence on eCRM implementation in Telecommunications companies and the last one is to study key frameworks used in implementation of eCRM systems in other countries.

A Case Study approach is adopted to aid this research come up with an informed opinion about the research questions that touch on the above objectives. The independent variables in this research are Institutional Influence, Peer Influence and Supervisory Authority Influence whilst the dependent variable is eCRM implementation.
The results of this study show a significant relationship between the dependent and independent variables sighting the moderators i.e. Perceived Environmental

Uncertainties, Perceived Gain in Competitive Advantage, Availability of Resources, Top Management Support, IT Capability and Cultural Acceptability that play a crucial role in ensuring that eCRM implementation is successful.

The results obtained in this study reveal that the moderating factors affect the success of eCRM implementation and the independent variables, Institutional Influence, Peer Influence and Supervisory Authority Influence do also have a great significance.
This research adopts a novel approach of developing a framework then coming out after a detailed research analysis of the research instrument with an implementation framework for eCRM systems in telecommunication companies in developing countries.

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ABBREVIATIONS

ADSL	-	Asymmetrical Digital Subscriber Line
BSC	-	Balanced Score Card
CDMA	-	Code Division Multiple Access
CITO	-	Chief Information & Technology Officer
CRM	-	Customer Relationship Management
e-CRM	-	Electronic Customer Relationship Management
GPRS	-	General Packet Radio Service
ICT	-	Information Communications Technology
IS	-	Information System
ISDN	-	Integrated Services Digital Network
MMS	-	Multi-Media Messaging Service
SMS	-	Short Message Service
TPB	-	Theory of Planned Behaviour
TRA	-	Theory of Reasoned Action
WAP	-	Wireless Application Protocol

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The emergence of the internet and the widespread use of the web technology provide an opportunity for businesses to deploy technology features for electronic Customer Relationship Management (e-CRM). Companies today realize the fact that the customer is the driver for their success and survival, so companies seek to meet customers demand and their expectations by using newly available technologies. Many companies are moving towards web-based customer services to reduce costs and provide real-time services to improve customers' convenience and satisfaction.

In the past, companies used traditional ways to "interact" with customers by using direct mail, sponsorship, public relations, press releases, exhibitions, merchandizing, word-of-mouth and personal selling among others. Today, companies can manage customers' relations through the Internet in a more effective and efficient way, called e-CRM. The term electronic customer relationship management (e-CRM) is an approach that uses technologies such as web sites, email, data capture, data warehousing and data mining to maximize sales to existing customers and encourage continued usage of online services.

The telecommunications industry is witnessing a fierce competitive market, where customers enjoy the privilege of switching from one service provider to another because customers want better services at lower prices. The telecommunications industry is experiencing on average 10 and 67 percent annual churn rate, which can be informally defined as the process of customer turnover, and it costs 5-10 times more to recruit a new customer than to retain an existing one. There are several reasons that support the importance of implementation of e-CRM practices in the mobile telecommunication sector. The fierce competition, new technologies and market changes have forced companies to reposition themselves in order to survive. Many companies have realized the value of retaining customers and benefits of customer loyalty. e-CRM can help companies decrease costs and streamline business processes.

Understanding e-CRM and its importance will help companies in their operations, improve the relationship and satisfaction of their customers, and increase their market share. e-CRM can help companies move from customer acquisition to customer retention and then to customer extension. The objective of this paper is to present the e-CRM concept in general, within the mobile telecommunications sector, using Orange mobile company as a case example and develop an implementation framework for use by telecommunication companies. A case study methodology

will be adopted to show how Orange moved towards implementing this technology and addressed its features to develop and maintain better relationships with her customers. Dyche (2001) (as cited in Fjermestad and Romano, 2003) insists that the goal of electronic customer relationship management (eCRM) systems is to improve customer service, retain valuable customers, and to aid in providing analytical capabilities. Furthermore, it is the infrastructure that enables the delineation of and increases in customer value, and the correct means by which to motivate valuable customers to remain loyal. The difference between adoption and implementation is fundamental: Individuals, teams, organizations, and communities often adopt innovations but fail to implement them successfully.

Electronic customer relationship management (eCRM) has gained momentum in Kenya over the last few years, especially in the telecommunications industry which has experienced tremendous growth witnessed in the mobile phone and electronic commerce arena. The idea of developing an eCRM System for Orange was conceived in 2007 by the then Chief IT Officer (CITO) who talked to the top level Management to approve a project to automate Telephone Sales Offices and Maintenance Control Centers countrywide in order to revolutionize service provision of Landline (POTS), CDMA (Code Division Multiple Access), ADSL (Asymmetrical Digital Subscriber Line), ISDN (Integrated Services Digital Network) and Data Services i.e. Kenstream, Kenpac, Jambonet and KenSat services. By embracing eCRM, Orange Kenya has in turn provided quality service, minimized service turnaround time, curtailed theft of funds by staff under dealings with disloyal customers, circumvented manual billing procedures and improved its revenue collection from satisfied customers. The management and internal users are now able to get tailor made reports and to search the database for resources at the click of a button, something that could take much longer before automation. Prior to eCRM implementation, the services were provided manually and were prone to delays, the manual paperwork requiring many staff to provide service, thus high wage bills, poor record keeping, manual filling and inefficient staff operations. This study therefore aims at a framework for successful implementation of eCRM in Telecommunications Sector, looking at pre-implementation factors all through to moderating factors that affect successful eCRM implementation process.

The rollout was not without bottlenecks that have necessitated a study to have a gainful framework to help in impending implementation of the second phase eCRM system at Orange.

1.1.1 E-CRM Systems in Telecommunications Companies

The telecommunications industry has developed in diverse ways depending on political, economic and cultural environments within each country. In fact the telecommunications industry faces multiple challenges and dramatic technological changes especially with the emergence of the

Internet and Mobile Communications. With privatization, Telecommunications companies need to restructure themselves and to compete with global companies in their home-base. With the growth of electronic commerce and moving toward online services, customers desired the ability to serve themselves without having face-to-face interaction. To achieve this demand and to satisfy customers, e-CRM systems come with the capability to address these requirements through digital media.

This study will present electronic Customer Relationship Management Systems (e-CRM's) through the investigation of multiple case studies in the telecommunication field literature. Khoury (2005) explained the e-CRM System in his book through many cases, one of these cases is Turkcell. Turkcell started its operations in 1994 in Turkey as the second mobile phone company in the country; it was granted a grand prize for International Customer Centricity Standards (ICCS) by the CRM Institute in Turkey which rewards companies for successful projects in the field of CRM. Turkcell offers several services including voice, SMS, MMS, WAP, GPRS, Voice Mail, Office Mobile Service, Roaming, Loyalty Program, and many others. For their CRM program, the Turkcell team identified essential projects like Sales Force Automation, Customer Segmentation, Churn Analysis, and Information Communication Technology (ICT) application of on-line customer services. Turkcell saw the Internet as a way of building and managing relationship with customers, in June 2004 more than 200000 individual subscribers were using Turkcell online services center to pay their bills, subscribe to service packages, monitor their accounts statements, and make other transactions related to their accounts. Turkcell online services center reflects Turkcell's segment-based marketing strategy, where the menu titles and information are personalized to match the customer's segment in order to meet the customers need and expectations.

Wright, Stone and Abbott (2002) in their study examined three case studies among the European telecommunications companies to illustrate the concept of CRM, focusing on how information technology in the form of the Internet and business intelligence solutions have enabled large businesses to focus on the customer as well as on their products and sales levels. Each company in the cases had used new ways to reach customers through systems harnessed to the Internet. The cases depicted changes in marketing, thinking and tactics towards customer acquisition and retention. Starting with a given Telecommunications company; the activities of the company are telecommunications services, mobile communications, satellite communications, networking solutions, Internet service provisioning, and others. It used a business intelligence solution that included data mining techniques to drill down through the enormous amounts of data collected in their databases. This step helped gain improved knowledge of customers and prospect key areas

related to CRM like: increased customer retention, cross-selling, attrition and loyalty building. The company business intelligence solution is still very new and the CRM projects needs the efforts of the entire company to participate in improving it.

1.2 Problem Statement

While there are well-known and significant success stories, failure rates of eCRM projects implementation maybe as high as 70% (Gray and Byun, 2001), between 50% and 70% Morrel and Philonenko, 2001), from 60% to 80% (Kale, 2004). It is documented in a significant number of articles that most problems in eCRM implementation are not technical (Achuama and Usoro, 2008; Rigby and Ledingham, 2004). Instead, common problems include organizational change and fluctuation, inconsistent and inaccurate customer data and changes which affect the business, for example mergers. It is asserted from the literature that eCRM is a concept that has been developed in a western (developed) world environment (Sanzogani et al, 2008). Nevertheless, taking to consideration the dynamic nature of business and increasing pace of globalization which lead to increasing transfer of products, service as well as knowledge and expertise, eCRM became popular in different parts of the world including developing countries for local and multinational organizations (Sage, 2006).

Identifying successful implementation of eCRM projects and studying them is one method to minimize the percentage of failure in these projects. Such approach is believed to overcome different types of obstacles when implementing eCRM such as focusing on the technological side of eCRM and neglecting other components of eCRM such as people and business processes. eCRM implementation in developing countries suffers from a shortage of academic and practical literature vis-à-vis the situation in developed countries. Studies that focus on eCRM implementation failure and success in developed countries do not provide CRM frameworks for successful implementation in developing countries.

1.3 Research Objectives

The study's general objective was to develop an implementation framework for eCRM in the telecommunications sector in Kenya. Consequently, the study's specific objectives included:

i) To investigate the effect of institutional influence on implementation of electronic customer relationship management (eCRM) in telecommunications sector.
ii) To investigate the effect of peer influence on implementation of electronic customer relationship management (eCRM) in telecommunications sector.
iii) To investigate the effect of supervisory authority influence on implementation of electronic customer relationship management (eCRM) in telecommunications sector.
iv) To analyze existing models for implementation of ECRM in telecommunications sector.
v) To develop a framework for successful implementation of eCRM in the telecommunications sector.

1.4 Research Questions

In order to achieve the study's general and specific objectives, the study answered the following research questions:

i) How does institutional influence affect implementation of electronic customer relationship management (eCRM) in telecommunications sector?
ii) How does peer influence affect implementation of electronic customer relationship management (eCRM) in telecommunications sector?
iii) How does supervisory authority influence affect implementation of electronic customer relationship management (eCRM) in telecommunications sector?

1.5 Significance of the Study

The study will be of significance to the government in policy formulation and regulation of the telecommunications industry and Telecommunications companies by providing industry based information that will assist management in understanding the role played by eCRM and its impact on the operations of the organization; also research and academic institutions by providing information and a benchmark for further research on the role eCRM plays and challenges faced in pursuit of successful implementation of eCRM within the Kenyan telecommunications industry.
All these entities play a role either of either Institutional influence, Peer Influence or Supervisory Influence on an eCRM implementation

1.6 Scope of the Study

The study is concerned only with implementation of ECRM in telecommunications sector with specific reference to Orange Kenya

1.7 Limitations of the Study

The major limitations of this study relate to time constraints and limited financial resources to undertake a comprehensive industry wide study in the Kenyan telecommunications industry. In addition, the inherent limitations of a case study approach in data collection, analysis and reporting of the study's findings cannot be overlooked.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature on customer relationship management (CRM) and electronic customer relationship management (eCRM) it also provides empirical review on implementation of eCRM and develops a conceptual framework for the implementation of electronic customer relationship management (eCRM) for telecommunications companies.

2.2 Electronic Customer Relationship Management (eCRM)

Romano and Fjermestad (2001-2002) suggest that successful eCRM requires attracting and keeping economically valuable customers while repelling and eliminating economically invaluable ones. Winer (2001) asserts that CRM is the new "mantra" of marketing. The traditional focus of marketing was the acquisition of new customers; however this has shifted to customer retention (Grönroos, 1994). Relationship building and management have become core principles of modern marketing approaches in both research and practice (Dwyer and Shurr, 1987) as the paradigm in marketing strategy has shifted from "marketing mix" to "relationship marketing" (Grönroos, 1994).

The key point is that eCRM takes on many forms depending on the organization's objectives. eCRM is not only about technology or software (Rigby *et al.*, 2002) it is about aligning business processes with customer strategies supported with software and technology. In short it is about business change, and change begins with the employees.

Electronic customer relationship marketing (eCRM) emerges from the internet and web technology to facilitate the implementation of CRM (Azila and Noor, 2011). Dyche (2001) (as cited in Fjermestad and Romano, 2003) suggests that there are two main types of eCRM: operational eCRM and analytical eCRM. Operational eCRM is concerned with the customer touch points. These can be inbound contacts through a telephone call or a letter to a company's customer service center or outbound contacts such as a sales person selling to a customer or an e-mail promotion. Thus, customer touch points can be everything from in-person, Web-based, e-mail, telephone, direct sales, fax, etc. Analytical eCRM requires technology to process large amounts of customer data. The intent is to understand, via analyzing customer demographics, purchasing patterns, and other factors so as to build new business opportunities.

Rosen (2001) (as cited in Fjermestad and Romano, 2003) suggests that eCRM is about people, processes, and technology. The people and the process issues are paramount to success. How do we design systems that focus on people and processes? There are two sets of principles, which can aid in this regard, usability and resistance. The next section reviews the general usability and resistance principles in the context of eCRM. Fjermestad and Romano (2003) suggest that successful eCRM requires attracting and keeping economically valuable customers while repelling and eliminating economically invaluable ones. They assert that CRM is the new mantra of marketing. The traditional focus of marketing was the acquisition of new customers; however this has shifted to customer retention. Relationship building and management have become core principals of modern marketing approaches in both research and practice as the paradigm in marketing strategy has shifted from marketing mix to relationship marketing. Relationship marketing emphasizes building relationships that lead to customer retention and long-term customer loyalty, in juxtaposition to traditional transactional marketing, in which making a one-time, immediate sale to the customer is the primary priority. Electronic customer relationship management (eCRM) has become the latest paradigm in the world of customer relationship management and that recent business surveys suggest that up to 50 per cent of such implementations do not yield measurable returns on investment. They further report that a secondary analysis of 13 case studies suggests that many of these limited success implementations can be attributed to usability and resistance factors (Fjermestad and Romano, 2003).

Scullin et al. (2011) notes that marketing concepts and definitions have remained relatively unchanged until recently and that electronic customer relationship management (eCRM) has forced marketing managers to reevaluate how, when and to what extent they interact with their customers. They further note that electronic customer relationship management (eCRM) is the latest technique companies are using to increase and enhance their marketing skills and capabilities. Velarde (2011) undertook a study on how McCain's eCRM strategy (how McCain Foods used electronic customer relationship marketing (eCRM) to establish and track value) and describes how, in 2008, McCain Foods embarked on an electronic customer relationship marketing (eCRM) programme as a means of establishing and tracking value in terms of purchase frequency and sales revenues, through comparing like-for-like segmentation with supermarket data, and reports that the effects of an eCRM programme become clear when it becomes possible to track a customer, from first "moment of truth", such as sight of a particularly striking advertisement, all the way through to lifetime value, via a checkout mechanism.

2.3 CRM and e-CRM

CRM is a strategy to build long term relationships with valuable customers. According to Khoury (2005) CRM is the strategic use of information, people, processes and technology to manage the relationship with customers in every business area (marketing, sales, services, and support). On the other hand, Internet and e-business are accountable for the "e" in the e-CRM term. E-CRM expands the traditional CRM techniques by integrating technologies of new electronic channels, such as web, e-mail, and wireless into the traditional processes of CRM.

Consequently it is important to note the differences between CRM and eCRM which are subtle, but important. E-CRM allows organizations to always operate in real-time and more than that, interactions with customers are transparent so that organizations are able to draw conclusions on customer behavior and measure the success of activities. Unlike conventional CRM processes, e-CRM processes imply high automation of interaction (Chaffey et al., 2009). They further point out that eCRM is more than technology. It requires socio-cultural efforts on the part of the company to make it a reality.

Table 2.1 The differences between CRM and eCRM

	CRM	**eCRM**
Customer data	• Data Warehouse • Customer Information • Transaction history • Product Information	• Web house • Customer information • Transaction history • Product Information • Click stream • Content Information
Analysis of customer characteristics	• Transaction analysis • Customer profile • Past transaction History	• Transaction analysis • Customer profile • Past transaction history • Activity Analysis • Exploratory analysis (Navigation, Shopping Cart, Pattern e.t.c.)
Customer service	• Target Marketing • Static Service • One-way Service • Time and Space Limits	• 1-to-1 Marketing

Source: Pan and Lee (2003)

2.4 E-CRM Systems

The concept of e-CRM started in the mid 1990s by the emergence of the Internet, web browsers, and other electronic touch points such as e-mail, call centers and direct sales. E-CRM has become a requirement for companies in order to compete and gain competitive advantage. Anumala (2007) identified that the aim of e-CRM is to improve customer services, retain valuable customers, and motivate valuable customers in order to remain loyal. According to Grönroos (1994) service firms by their inherent characteristics of inseparable production and consumption possess the elements necessary to forge relationships with consumers. Because most companies offer almost the same core products or services, differentiation will be of greater interest to companies with the strongest capability to develop long-term consumer relationships (Zineldin, 1999). Consumers perceived that service quality, satisfaction and value have played an important role in service management (traditionally) in the context of online businesses, so a holistic and multipurpose view of the whole relationship is required (Holmlund & Strandvik, 1999; Luck & Lancaster, 2003).

In a study of the current use of the Internet as a marketing tool in the hotel industry, Gilbert et al. (1999) present an argument for the application of the Relationship Model as a framework for the development of hotel Web sites. They contend that hotels need a framework that can bridge the gap between simply connecting to the Web and harnessing its power for competitive advantage. However, the pursuit of the marketing objective will be constrained by the possibilities presented within the hotel's market area, the hotel's location and its current product positioning (Jeffrey and Barden, 2000). Drawn from previous literature, this study investigated perceived important E-CRM dimensions and features in managing consumer relations. Ab Hamid and McGrath (2005) reported 12 dimensions of E-CRM program namely: information quality, ease of navigation, consumer service quality, fulfillment, integrated marketing channels, online community, rewards, personalization level, site security, value-added services, perceived trust and price attractiveness.

Treating customers the right way, every time is the goal of many customer service representatives in call centers. With the evolution of the internet traditional call centers have evolved into an e-contact center. The purpose of an e-contact center is to provide a personal customer service experience that is individualized to each customer's needs and questions (Deitel, Deital, & Steinbuhler, 2002). An e-contact center is made up of multimedia channels including a call center, web site, online chat rooms and e-mail services. The traditional brick and mortar call centers are 'becoming a thing of the past'. Customers who are interacting with a company on the internet prefer to get their answers on the internet. A web enabled contact center can provide information

via instant messages to customers. Customers no longer have to remain on hold waiting for a representative to take their call. Companies need to integrate all customer databases to meet the needs of the customers who send an e-mail today but calls tomorrow.

Based on the above studies, it can be said that customer satisfaction leads to better customer relationships. Better customer relationships lead to customer loyalty which eventually leads to profitability. Loyal customers tend to buy more and stay with a preferred company longer than non-loyal customers. In many cases, satisfied customers are less likely to switch to competitors, making it difficult for competitors to enter the market or gain market share (Buchanan & Gilles, 1990). This reflects that the company should provide products/services that meet the customers' requirements. Thus, it is clear that a company should create and maintain long term relationships with customers. Moreover, while acquiring new customers, existing customers should not be ignored since it is also said that wining new customers can be five to ten times more expensive than maintaining existing customers (Bauer *et al.*, 2002; Kalakota & Robinson, 2001). Moreover, Reichheld (1996) argues that a small increase in retention of 5% can yield a 95% increase in the net present value (NPV) delivered by customers.
Thus, it is also important to maintain relationships with existing customers.

2.5 Implementation of Electronic Customer Relationship Management (eCRM)

According to Bauer *et al.*, 2002; Kalakota & Robinson, 2001there are several characteristics of eCRM that determine the success or failure of eCRM within organizations. Literature identifies leadership as a critical success factor for eCRM implementation. For instance, in a study by Chen and Chen (2004), the researchers identify the need for initial management support as well as ongoing management leadership as demonstrated by consistent organizational commitment. This unwavering focus is touted to ensure corporate alignment of the eCRM initiatives throughout all levels of the organization. Additional research considers the use of incentives and training as key factors for combating resistance from associates and managers who will be users of the eCRM system or tool. Bentum and Stone (2005) (as cited in O'Reilly and Paper, 2009) support the positive role of effective leadership and highlight the need to align people and subcultures. Findings from this study refute the common claims by software vendors that there is a single path to CRM success. Instead, the authors suggest that there is no single CRM culture that exists, but that a communal and open corporate culture of communication yields the best results.

A second characteristic of eCRM success or failure identified by O'Reilly and Paper (2009) is business process issues. Such issues are commonly cited as reasons for CRM system failure, but

are also the most under-researched. However, a few agreed upon notions regarding process do emerge.

First, organizations with an existing offline culture of excellent customer care as demonstrated by service consciousness, a customer-centric organization, and customer-focused strategies are more likely to achieve CRM success.

Second, as has been noted in previous research, companies with distinct contact with customers, who are in very competitive market spaces, and who value differentiation for products and services, are most ready for CRM. Third, strategic and thoughtful planning is also critical for CRM success. Without a sound business strategy that links directly to the expected outcomes of CRM, CRM systems and tools are unlikely to succeed. Strategic elements such as customer-related benefits, the consolidation of customer information, and improved response times are all mentioned examples that must be carefully planned and designed in order to be realized.

The third characteristic of eCRM success or failure includes systems integration and data (alignment between business and IT). This factor is commonly defined as the matching of business processes with the IT architecture. Failure to achieve alignment is one of the most cited reasons for CRM failure. While it is intuitive that the "system" must match the processes, integration issues have broad-reaching impacts. For instance, consideration for where data resides, the number of systems required for integration, the usability of, and resistance to the system by users, and the expected outcomes and system functionality are commonly overlooked (O'Reilly and Paper, 2009).

While tight systems integration is identified as a critical success factor, a technology's ability to be flexible (Szmigin et al., 2005) (as cited in O'Reilly and Paper, 2009) is also important. System flexibility allows system users to more readily adapt to customer data and trends, and ultimately deliver personalized marketing information to customers. However, the ability to design, develop, and deliver usable, fully integrated systems is difficult. Understanding this is important to continually measure and model customer sales, satisfaction and value, both in terms of absolute figures and trends.

Lastly, the role and influence of vendors in the implementation of eCRM is another critical area according to O'Reilly and Paper (2009). They point out that while the majority of eCRM research embraces a company perspective lens, particularly the IT and/or the marketing departments

responsible for implementation then assimilation of eCRM strategies; in our review of the literature, it appears that vendors have remained backstage, silent, and unseen. Often vendors are referred to as extensions of management or are considered as an "eCRM software solution by company X, Y, Z." There is a paucity of research regarding the motivations and insights of the vendors who sell, support, and develop eCRM systems.

2.6 Challenges to implementing innovations

The implementation of team and organizational innovations is difficult for numerous reasons. Six interrelated reasons figure prominently in the implementation literature.

First, many innovations—particularly technological innovations—are unreliable and imperfectly designed. The newer the technologies, the more likely it is to have bugs, break down, and be awkward to use. This ''hassle factor'' can render even the most enthusiastic technophile frustrated and annoyed. In their review of the literature on computerized-technology implementation, Klein and Ralls (1995) reported that 61% of the qualitative studies they reviewed documented the negative consequences of low technology quality and availability on employee satisfaction and innovation use.

Second, many innovations require would-be users to acquire new technical knowledge and skills. For many people, this may be tedious or stressful. In an individual-level study of project engineers' implementation of information-technology innovations, Aiman-Smith and Green (2002) found that innovation complexity—the extent to which the new technology was more complicated than the technology it replaced—was significantly negatively related to user satisfaction and the speed required to become competent in using the innovation.

Third, the decision to adopt and implement an innovation is typically made by those higher in the hierarchy than the innovation's targeted users. Targeted users, however, often have great comfort in the status quo and great skepticism regarding the merits of the innovation. Nevertheless, they may be instructed by upper management to use the innovation against their wishes. Indeed, based on interviews in 91 organizations, Nutt (1986) concluded that managers' most common strategies in guiding innovation implementation are ''persuasion'' and ''edict''—both of which involve little or no user input in decisions regarding adoption and implementation.

Fourth, many team and organizational innovations require individuals to change their roles, routines, and norms. Innovation implementation may require individuals who have previously worked quite independently to coordinate their activities and share information (Klein & Sorra,

1996). It may also disrupt the status hierarchy, requiring individuals who have previously worked as boss and subordinates to now work as peers. In a qualitative study of the implementation of an empowerment education intervention for diabetes patients, Adolfsson, Smide, Gregeby, Fernstro¨m, and Wikblad (2004) found that doctors and nurses struggled with the role changes that the intervention required. Although the doctors and nurses believed that the empowerment approach was beneficial for their patients, they found it difficult to step out of their expert roles to interact with their patients as facilitators.

Fifth, implementation is time consuming, expensive, and, at least initially, a drag on performance. Effective innovation implementation often requires hefty investments of time and money in technology start-up, training, user support, monitoring, meetings, and evaluation. Thus, even the most beneficial innovation is likely to result in poorer team and/or organizational performance in the short run, as Repenning and Sterman (2002) documented in their study of the implementation of two process improvement innovations—one designed to reduce expensive stores of work-in-progress inventory and one designed to speed new product development—in a division of a major U.S. automaker.

Good things—implementation benefits—may come to those who wait, but targeted users and their managers may feel greater pressure to maintain pre-existing levels of performance than to invest in the uncertain and long-term potential of innovative implementation.
And, sixth, organizations are a stabilizing force. Organizational norms and routines foster maintenance of the status quo. Even when organizational members recognize that a specific change would be beneficial, they often fall prey to the "knowing– doing gap" (Pfeffer & Sutton, 2000). That is, they often fail, for a variety of reasons, to actually do the things that they know would enhance performance or morale. Organizational members may adhere rigidly to the past, fear reprisal for suggesting bold changes, or substitute talk for action, for example (Pfeffer & Sutton, 2000). The result, unfortunately, is a failure to adopt, and certainly to implement, potentially beneficial innovations.

Given these challenges to implementation success, it is perhaps no wonder that observers estimate that nearly 50% or more of attempts to implement major technological and administrative changes end in failure (e.g., Aiman-Smith & Green, 2002; Baer & Frese, 2003; Repenning & Sterman, 2002). Indeed, a 2002

2.7 Evolving role of Electronic Customer Relationship Management (eCRM)

Companies have continuously evolved from customer relationship management (CRM) strategy to electronic customer relationship management (eCRM). According to Pan et al. (2003) eCRM expands the traditional CRM techniques by integrating technologies of new electronic channels. E-CRM solution supports marketing, sales and service and with the advancement of Web-based technology, market dynamics are driving companies to implement E-CRM in the enterprise. E-CRM cannot be separated from CRM as it needs to be integrated seamlessly. However, many organizations do have specific eCRM initiatives or staff responsible for eCRM. Both CRM and e-CRM are not just about technology and databases, it is not just a process or a way of doing things, it requires, in fact, a complete customer culture (Chaffey et al., 2009).

In order to investigate the post era of electronic customer relationship management (eCRM) implementation at Orange Kenya, the researcher will develop a conceptual framework that highlights institutional influence in relation to peer influence and supervisory authority influence during eCRM implementation as the independent variables in line with the study's specific research objectives. The dependent variable is the implementation of eCRM with six moderating factors being; Top Management Support, IT Capability, Cultural Acceptability, Perceived Environmental Uncertainty, Perceived Gain in Competitive Advantage and Availability of Resources.

2.8 Theoretical Framing

From an institutional perspective, firms face pressures to conform from regulatory bodies or other peer organizations. Nevertheless, there is also evidence that firms can formulate different strategic decisions in response to external legitimacy pressures (Ang and Cummings 1997, Oliver 1991, Perrow 1985). In addition to institutional pressure on adoption, a number of studies also point out the relevance of environmental factors in the eCRM implementation context (Hirt and Swanson 2001, Gosain 2004). For instance, Butler (2003, p. 215) elaborates on the "institutional tension" among various social actors during the development of Web-based IS development due to their commitments to the external "communities of practices" we argue that, while acknowledging institutional effects, firms might exhibit different attitudes towards evaluation of ECRM and implementation because of the influence of various internal and external organizational contingencies. In other words, given the institutional pressures to conform, these contingencies affect the extent to which organizations attribute importance to evaluation of ECRM as an administrative innovation.

2.8.1 Technology Adoption Frameworks

The adoption of new technologies has been studied through different theoretical frameworks, which include the Diffusion of Innovation Theory; Rogers (1995), the Theory of Reasoned Action; Fishbein and Ajzen, (1975), Technology Acceptance Model; Davis, (1989) among others.

2.8.2 The extended Technology Acceptance Model (TAM2)

Venkatesh and Davis (2000) proposed an extension of TAM (TAM2) by adding more important determinants of perceived usefulness – that is, subjective norm, image, job relevant, output quality, result demonstrability, and perceived ease of use – and two moderators – that is, experience and voluntariness (Venkatesh and Davis, 2000). In addition to this, in the TAM2, it omits attitude toward using because of weak predictors of either behavioural intention to use or actual system usage (Venkatesh and Davis, 2000; Wu et al., 2007).

Venkatesh and Davis, (2000), TAM2 consists of social influence and cognitive instrumental processes as the determinants of perceived usefulness. The social determinants are subjective norm ("the degree to which an individual perceives that most people who are important to him think he should or should not use the system"), and image ("the degree to which an individual perceives that the use of an innovation will enhance his or her status in his or her social system"). The cognitive determinants are: job relevance ("the degree to which an individual believes that the target system is applicable to his or her job"), output quality ("the degree to which an individual believes that the system performs his or her job tasks well"), and result demonstrability ("the degree to which an individual believes that the results of using a system are tangible, observable, and communicable") (Venkatesh and Davis, 2000; Venkatesh and Bola, 2008). Experience and voluntariness were included as moderating factors of subjective norm (Venkatesh and Davis, 2000).

2.8.3 Delone and Mclean Information Systems Success Model

Delone and McLean (DeLone & McLean, 1992) identified the factors affecting the establishment of an eCRM system on the works on system establishment. These two researchers believe there are three dimensions to the proper establishment of a system: suitability of the processes, quality of customer information, and the system technology. These three dimensions and their components are evaluated in many areas as factors affecting the establishment of an eCRM system.

Efficiency in IS implementation success is frequently defined in terms of the achievement of some predetermined goals, which normally include multiple efficiency parameters such as time, cost, and function (Hong & Kim, 2002; Markus & Tanis, 2000).

Customer satisfaction: CRM is a customer-driven concept, which allows customers to be in control of the system (Roh et al, 2005). As customer satisfaction is commonly acknowledged as one of the most useful measurements of system success (Chen et al., 2000; Peppard, 2000). Customer satisfaction is the collective outcome of the customer's perception, evaluation, and psychological reaction to the consumption experience with product or service (Fornell, 1992; Yi, 1990). A customers' relationship with a company is strengthened when that customer makes a favorable assessment about the company's service quality and weakened when a customer makes negative assessments about the company's service quality (Zeithaml et al., 1996). There is a strong theoretical underpinning for an empirical exploration of the linkages among customer satisfaction, customer loyalty, and profitability (Hallowell, 1996). We measure customer satisfaction as an intrinsic CRM success by perceived level of the shift after CRM system implementation: friendly interaction with customer, brand value, customer complaints, and overall customer satisfaction (Roh et al., 2005).

A widely accepted IS success model is that of DeLone and McLean, which defines six constructs associated with IS success: system quality, information quality, system use, individual impact, organizational impact, and user satisfaction.

2.8.4 The balanced scorecard (BSC): its utilization in an e-CRM context

The balanced scorecard is a strategic management and performance measurement tool developed by Kaplan and Norton (1992). It answers four critical questions:

(1) Financial perspective: how do we look to shareholders?

(2) Customer perspective: how do customers see us?

(3) Internal business perspective: what must we excel at?

(4) Innovation and learning perspective: can we continue to improve and create value?

The essence of the BSC lies in the fact that it addresses to link a company's long-term strategy with its short-term actions. Kaplan and Norton (1996) specifically discuss how this can be managed through four major processes in implementing the balanced scorecard:

(1) Translating this vision to company management;

(2) Communicating and linking it to departmental and individual objectives;
(3) Business planning, this directs all efforts and resources toward a macro plan drawn by the BSC; and
(4) Feedback and learning to monitor results.

The holistic nature of the BSC makes it a very suitable tool to measure the performance of IT/IS projects. It has been used for this purpose in many studies, both with its original dimensions and also with alterations in or additions to its four perspectives.

For example, Hasan and Tibbits (2000) have outlined the IS and e-commerce scorecard perspectives which include dimensions such as business value, end user, internal process, future readiness, and human and IT capital. Similarly, Martinsons et al. (1999) have proposed user orientation, business value, internal processes and future readiness as the four major perspectives for evaluating IS activities. In their application of this methodology to e- business projects, Grembergen and Amelinckx (2002) used the customer orientation perspective for acquiring and retaining customers through the website, the operational excellence perspective for the delivery of timely and effective e-business services, the business contribution perspective for the business value (profitability, ROI, cost reductions) of the e-business project, and the future orientation perspective for the human and technology resources needed by the e-business project to deliver services. Due to its flexibility and integrated composition, the BSC can be applied to assess the success of various IS/IT and e-business projects.

In their study in which they evaluate various measurement models on marketing return, Seggie et al. (2007) praise the BSC for incorporating such forward-looking metrics, especially under the innovation and learning perspective. The criteria used in studies that aim to assess success in CRM strengthen the suitability of the BSC for evaluating performance in this area. In most of these attempts, measures that relate to one or more of the perspectives under the BSC are used. Zablah et al. (2004) outline success criteria for CRM as efficiency in using resources for acquisition and retention efforts, the quality of customer relationships, cross and up-selling opportunities, and the customer share captured by a firm. In another attempt, Chang (2007) aims to measure eCRM system's success through assessing its contributions to overall organizational performance, customer relationship quality improvement, organizational learning, and business process re-engineering. These variables all relate closely to the perspectives of the BSC.

Grabner-Kra¨uter et al. (2007) confirm this by stating that CRM performance can be assessed extensively based on valuation criteria from the different BSC perspectives. They used it as one of the three main instruments that were integrated to develop a CRM performance evaluation system.

Kim and Kim (2007) made such an attempt and proposed a CRM scorecard including a wide array of performance measures. For this purpose, they developed four alternative perspectives, which are:

(1) Organizational performance indicators, such as profitability and customer equity;
(2) Customer perspective measures, such as satisfaction and loyalty;
(3) Process perspective measures such as acquisition, retention, and expansion; and
(4) Infrastructure perspective, which includes sub-dimensions like the usage of IT and human capital, the match between organizational structure and culture and CRM strategy, etc.

In short, the high scope and variety of all these indicators cited in the literature as measures of CRM success can be effectively incorporated into the four major dimensions of the balanced scorecard.

Construction of a balanced scorecard for e-CRM performance

The major theme for performance evaluation under each of the four main dimensions of the BSC can be seen in Figure 2.1.

The customer perspective; the usefulness and productivity of e-CRM projects depend greatly on the customer (end-user), who is not internal as they would be in most other IT projects. In this respect, it is necessary to evaluate e-CRM implementations with regard to how successful their customer-based outputs are.

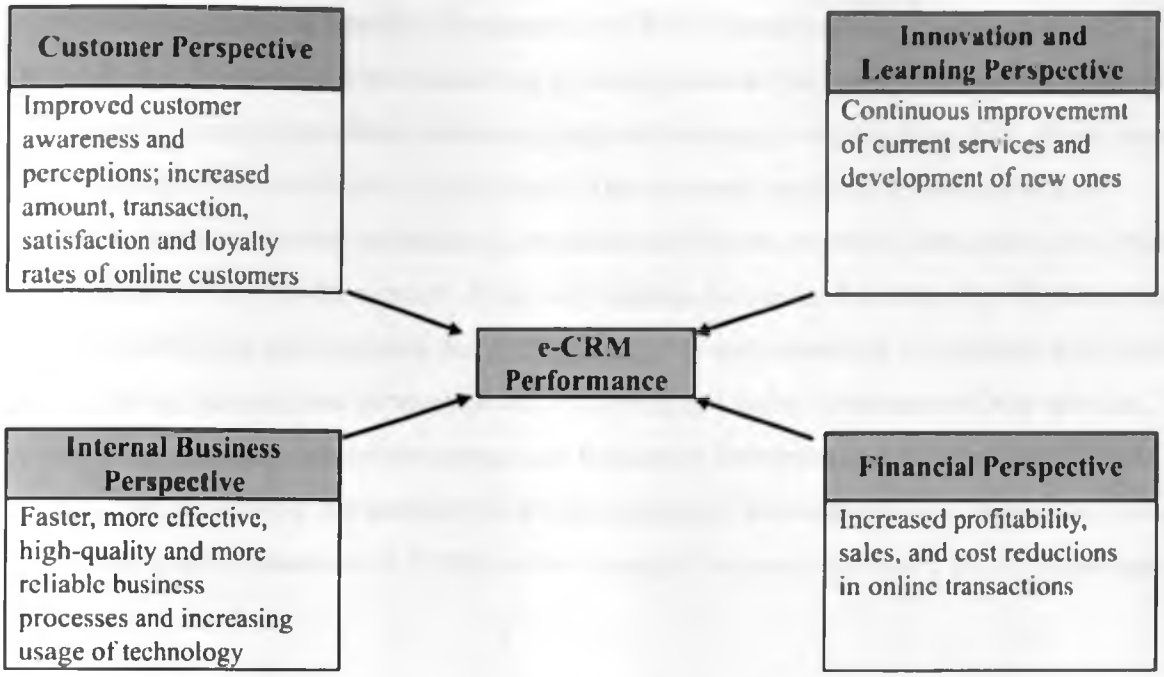


Figure 2.1. The balanced scorecard perspectives in an e-CRM context

Naturally, the customer-based assessment of Relationship Management programs focuses most heavily on customer value, satisfaction, loyalty, and retention. Kim et al. (2003) have deconstructed the customer-centric evaluation of CRM into four components as follows:

(1) Customer lifetime value and loyalty;

(2) Customer satisfaction, retention and acquisition;

(3) Customer interaction; and

(4) Customer knowledge, profiling and understanding.

Similarly, Jutla et al. (2001) have outlined customer retention (existing customer loss rate), satisfaction (innovative products and services, customization, convenience, communities, etc.), acquisition and profitability as the major metrics in evaluating e-CRM readiness. A satisfied and loyal customer base is the ultimate goal of CRM and online businesses have to have e-CRM as an integral part of their business processes to help create e-loyalty
(Da-wei, 2007).

Since customer acquisition, retention, satisfaction and loyalty are so centrally important criteria in e-CRM success; numerous measures relating to these variables can be encountered in various studies. Tan et al. (2002) categorize CRM programs into four, i.e. those that focus on winning customers back, prospecting to win new customers, encouraging customer loyalty and cross-selling or up-selling to increase the wallet share captured from customers – which actually all relate closely to these four main themes. Fjermestad and Romano (2003) cite Scullin et al. (2002)

to pinpoint the important benefits of successful e-CRM implementations, such as increased customer loyalty, more effective marketing by having detailed customer information, predicting the type and timing of purchases, producing targeted campaigns and tracking their effectiveness. In Grembergen and Amelinckx's (2002) study, the customer perspective includes similar measures, such as customer satisfaction, complaint resolutions, retention rates and repeat orders, acquisitions and new leads, number of hits, impressions and visits. Additionally, Ab Hamid and Kassim (2004) have demonstrated that e-CRM improves understanding of consumer behaviour and delivering personalized services as well as consumer loyalty. Awareness of site services, customer satisfaction, transaction amount and frequency, determination of appropriate target markets, and positioning the company as a high-technology business are also among the example goals portrayed by Strauss et al. (2006) in their example balanced scorecard for an e-business firm.

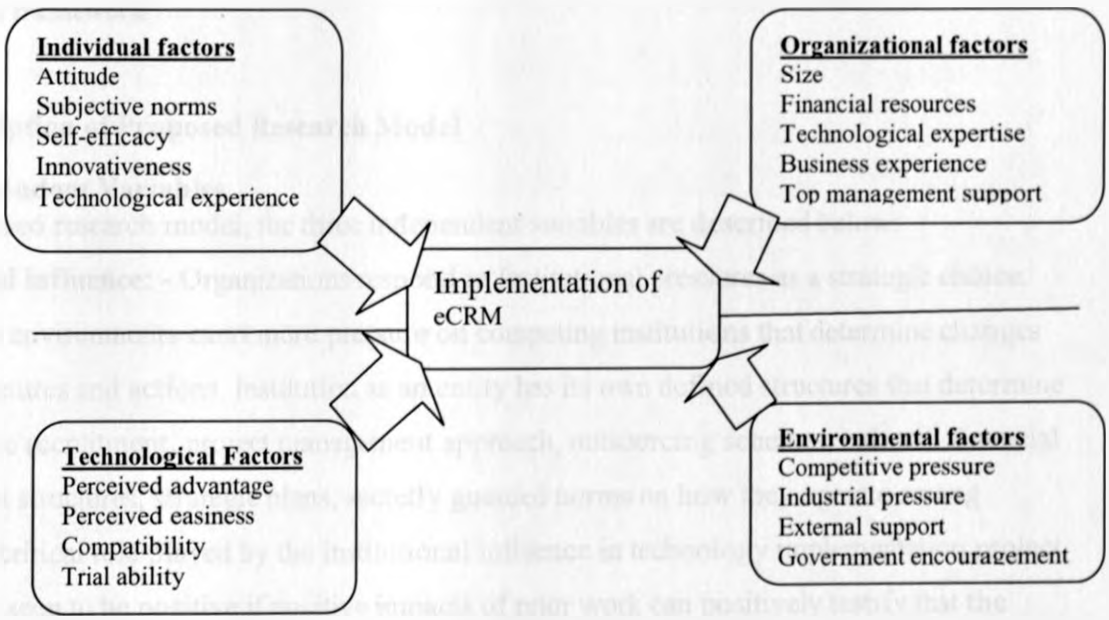
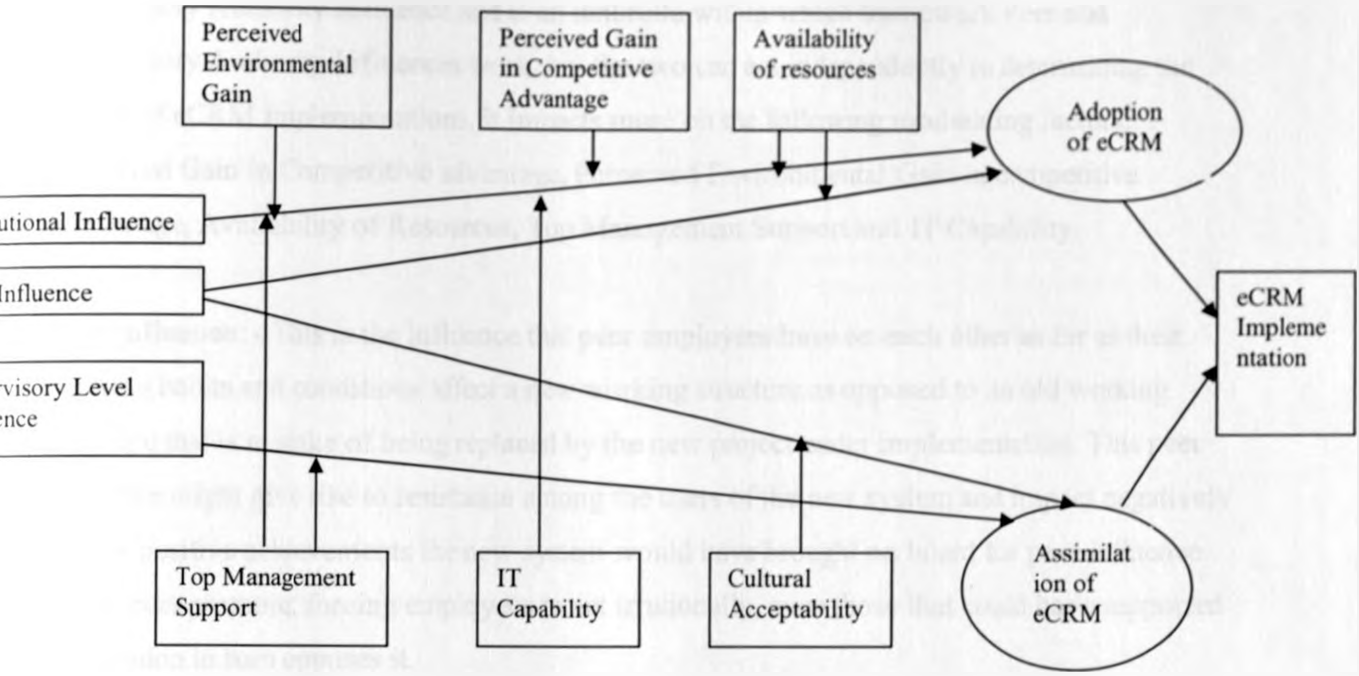


Figure 2.2: Forces leading to framework for implementation of ECRM

2.9 Conceptual Framework

The result of the two-step method of internal and external forces was an enhanced research model of implementation of ECRM, as shown in the figure 2.3 below. Drawing from the institutional theory on innovation diffusion, organizational decision to implement and adopt ECRM architecture is influenced by the supervisory authority and peer organizations. As mentioned earlier, administrative innovation can lead to different forms of technology adoption and implementation. Given the nature of administrative innovation, which is a management-oriented and continuous phenomenon, we expect that moderating variables will differ between the



2.3: Conceptual framework

2.9.1 Description of Proposed Research Model

2.9.2 Independent Variables

In the proposed research model, the three independent variables are described below:

Institutional influence: - Organizations respond to Institutional pressures as a strategic choice. Institutional environments exert more pressure on competing institutions that determine changes in their structures and actions. Institution as an entity has its own defined structures that determine the employee recruitment, project management approach, outsourcing schemes, cultural, financial management structures, strategic plans, secretly guarded norms on how they operate among others. The critical role played by the institutional influence in technology implementation project will only be seen to be positive if positive impacts of prior work can positively testify that the implementation will add value to the institutional goals, objectives and targets.

Bentum and Stone (2005, p. 52) support the positive role of effective leadership and highlight the need to align people and subcultures. Findings from this study refute the common claims by software vendors that there is a single path to CRM success. Instead, the authors suggest that there is "no single CRM culture that exists", but that a "communal and open corporate culture of communication" yields the best results. However, it is interesting to note that in studies reliant on the views of expert practitioners (e.g. vendors and consultants), failure is more often attributed to people issues such as effective leadership while studies reliant on the views of managers, attribute failure more often to technology issues. Institutional Influence encompasses Peer Influence and

Supervisory Authority Influence and is an umbrella within which framework Peer and Supervisory Authority Influences work, but the two can act independently in determining the course of eCRM Implementations. It impacts more on the following moderating factors; Perceived Gain in Competitive advantage, Perceived Environmental Gain in competitive Advantage, Availability of Resources, Top Management Support and IT Capability.

Peer influence: - This is the influence that peer employees have on each other as far as their working habits and conditions affect a new working structure as opposed to an old working structure that is at stake of being replaced by the new project under implementation. This peer influence might give rise to resistance among the users of the new system and impact negatively on any positive achievements the new system would have brought on board for peer influence yields peer pressure, forcing employees to act irrationally, even those that could have supported automation in turn opposes it.

Many team and organizational innovations require individuals to change their roles, routines, and norms. Innovation implementation may require individuals who have previously worked quite independently to coordinate their activities and share information (Klein & Sorra, 1996). It may also disrupt the status hierarchy, requiring individuals who have previously worked as boss and subordinates to now work as peers.

Targeted users and managers may feel greater pressure to maintain pre-existing levels of performance and maintain their comfort zones than invest in the uncertain and long term potential of implementation. It impacts more on Availability of Resources and Cultural Acceptability.

Supervisory authority influence:- This refers to the authority vested on the supervising arm of the organization, is the supervisory mechanism able to align the team being supervised to implement the new technology in the company in line with the set objectives? If the supervisory authority is weak in one way or another, the implementation of eCRM will not achieve much as there might arise resentment among the supervised team to sabotage the project.

Organizational norms and routines foster maintenance of the status quo. Even when organizational members recognize that a specific change would be beneficial, they often fall prey to the "knowing– doing gap" (Pfeffer & Sutton, 2000). That is, they often fail, for a variety of reasons, to actually do the things that they know would enhance performance or morale. Automation flattens the organizational structure, thus making Supervisory Authority enjoyed by

managers fizzle out. This makes many not support the implementation of eCRM. This moderating factor impacts more on Top Management Support.

2.9.3 Dependent Variable

eCRM Implementation: - This is the variable that is in focus and the reason for carrying out this research. There are six moderators that guide the study in understanding how the dependent variable can be seamlessly achieved after aligning the dependent variables and using a research instrument to get feedback from the sample population and come out with an informed idea on how the dependent variable can be achieved in the research framework.

eCRM implementation is time consuming, expensive and at least initially, a drag on performance. Effective implementation often requires hefty investments of time and money in technology start-up, training, user support, monitoring, meetings and evaluation.

Implementation benefits are many and come to those who wait.

Adoption of eCRM: - Adoption plays a key role in eCRM implementation. In order to have a successful implementation, the company must adopt the technology. Viewing technology adoption as a consistent process is the key to enabling hesitant users to successfully adopt and use technology. Technology adoption is important because it is the vehicle that allows most people to participate in a rapidly changing world where technology has become central to our lives. Individuals who won't or can't adopt will increasingly limit their ability to participate fully in the financial and convenience benefits associated with technology.

Technology adoption is looked at in 5 step process:

Awareness – potential users learn enough about the technology and its benefits to decide whether they want to investigate further

Assessment – potential users evaluate the usefulness and usability of the technology, and the ease or difficulty of adopting

Acceptance – potential users decide to acquire and use the technology, or decide not to adopt

Learning – users develop the skills and knowledge required to use the technology effectively

Usage – users demonstrate appropriate and effective use of the technology

Assimilation of eCRM:-

Assimilation is a gradual process by which a person or group belonging to one technological culture adopts the practices of another, thereby becoming a member of that technological culture. Assimilate means "to absorb." Once this technology is absorbed, it becomes part and parcel of the technological cultural practices in the organization.

2.9.4 Moderators of Institutional Conformity for ECRM Implementation

Perceived Environmental Uncertainty

Organizational theorists have long been interested in the relationship between organizations and their environments and argued that coping with uncertainty is a vital organizational survival skill (Duncan 1972, Milliken 1987). Pfeffer and Salancik (1978, p. 67) define environmental uncertainty as "the degree to which future states of the world cannot be anticipated and accurately predicted." One strategic response to environmental volatility involves inter-organizational imitation (Ang and Cummings 1997, Haunschild and Minner 1997). In ECRM implementation, environmental uncertainty refers to the unpredictability of major trends or risks in the business environment, and the possible security risks induced by the emerging technologies that organizations deploy to enhance operational efficiency and effectiveness (Chou et al. 1999, Straub et al. 2008). Chang and Ho (2006) show that there is a relationship between environmental uncertainty and implementing ECRM. We hypothesize that organizations conform to external pressures to implement ECRM when they perceive greater environmental uncertainty.

Hypothesis 1: The greater the level of environmental uncertainty perceived by an organization, the greater the likelihood that the organization will conform to institutional influence, peer influence and supervisory authority influence to implement eCRM.

Perceived Gain in Competitive Advantage

Ang and Cummings (1997) observed that firms are more likely to conform to institutional requirements if doing so results in a gain in production economics. In the hypercompetitive and globalized business environment, organizations and market participants increasingly find it necessary to deploy signaling strategies to potential customers and business partners that differentiate their products and services from those of lower quality. Kankanhalli et al. (2003) also argue that management investment in effective ECRM can lead to competitive advantages. Therefore, we hypothesize that when an organization perceives an increase in its competitive advantage, it is expected to conform more completely to institutional influences on ECRM implementation.

Hypothesis 2: The greater the gain in competitive advantage perceived by an organization, the greater the likelihood that the organization will conform to institutional influence, peer influence and supervisory authority influence to implement eCRM.

Availability of Resources

Discussing the economic determinants of organizational innovation, Rosner (1968) contended that the resources available to an organization determine whether it can afford innovation. Other researchers have shown the moderating effect of available resources in response to institutional pressure (Ang and Cummings 1997, Zinn et al. 1998). Available resources allow firms to be flexible in investing in additional human resources for administrative innovation as well as in absorbing failure costs (Kaluzny et al. 1993), which is important when organizations have difficulty achieving a return on investments. In terms of ECRM, Straub et al. (2008,) explain that ECRM is also an "economic decision" and it usually "requires resources." Firms with larger resources, ones that can tolerate more risk and engage in larger investments in ECRM, hence are more likely to conform to institutional pressure.

Hypothesis 3: The greater the availability of organizational resources, the greater the likelihood that the organization will conform to institutional influence, peer influence and supervisory authority influence to implement eCRM

Top Management Support

Damanpour (1991) argues that managerial support is "especially required in the implementation stage, when coordination and conflict resolution among individuals and units are essential" (p. 558). Bantel and Jackson (1989) discuss the significance of the top management team in relation to innovation decision-making in the banking sector. In addition, it has been found that the role of top management is much more important in the implementation stage as well as in adoption process (Liang et al. 2007). Thus, the strong participation of top management results in the implementation of an efficient innovation process and activities intended to assimilate these innovations in the organization (Ba et al. 2001). In the ECRM literature, Kankanhalli et al. (2003) and Kotulic (2004) both point to the importance of top management in supporting ECRM programs in organizations. Thus, we hypothesize that stronger top management support will lead to a higher degree of adoption of ECRM innovations.

Hypothesis 4: The greater the top management support, the stronger the relationships between the institutional influence, peer influence and supervisory authority influence to implement eCRM

IT Capability

Bharadwaj (2000, p. 171) defines IT capability as "an ability to mobilize and deploy IT-based resources in combination or co-present with other resources." The capability allows an organization to connect people to people as well as people to innovation activities, such as ECRM (Junarkar 1997). We argue that IT capability is especially important when the nature of the innovation is administratively oriented. With a sufficient IT infrastructure, firms can quickly adjust to changing environmental contingencies and facilitate the organizational learning process. Chang and Ho (2006) also found a positive relationship between business managers' IT competence and the implementation of ECRM. Furthermore, while the importance of the ECRM maturity model has been emphasized in prior literature, a recent interesting view is that the degree of ECRM maturity needs to be assessed using a capability perspective (Chiang et al. 2008). Aligning with that perspective, our qualitative interviews with practitioners also highlighted the importance of the IT capability. Many interviewees emphasized IT capability as a key factor of ECRM implementation. Based on the above discussion, we hypothesize that when IT capability is high; firms are more inclined to conform to external pressures to implement ECRM.

Hypothesis 5: The greater an organization's IT capability, the stronger the relationship between institutional influence, peer influence and supervisory authority influence and implementation of eCRM.

Cultural Acceptability

Similar to the line of argument on IT capability articulated above, cultural acceptability plays an equally vital role in supporting the creation of a security culture and the enhancement of employees' security awareness during the adoption stage. In framing an ECRM implementation strategy, Baskerville and Dhillon (2008) identify several competencies required to manage ECRM implementation strategy, e.g. the competence to maintain policy flexibility, the competence to communicate the necessity for ECRM procedures, and the competence to facilitate informal communication about ECRM., Hsu (2009) found that the lack of organizational culture partly contributes to the ineffectiveness of ECRM implementation because employees did not change their attitude and behaviors about ECRM.

Hypothesis 6: The higher the cultural acceptability of innovation, the stronger the relationship between institutional influence, peer influence and supervisory authority influence and implementation of eCRM.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research methodology used by indicating the research design, target population, data collection methods and data analysis that will be utilized in investigating the implementation framework for evaluation of electronic customer relationship management (eCRM) at Orange Kenya.

3.2 Research design

In order to investigate the role played by the electronic customer relationship management (eCRM) in the Kenyan telecommunications industry after the implementation stage, the researcher adopted a case study research design. A case study is an in-depth investigation of an individual or a group or an institution with a primary motive to determine factors and relationships that have resulted in the behaviour of the study (Robson, 2002). The researcher undertook a case study of Orange Kenya as it is one of the longest running telecommunications companies in Kenya that implemented eCRM between 2008 and 2010 in the first phase. The research design enabled the researcher to undertake an in-depth investigation of a framework for successful implementation of electronic customer relationship management (eCRM) by looking into the investment, user experiences, and value of eCRM to the company as a precursor to entire industry.

3.3 Target population

The target population for this study comprised all departments in the firm and service providers that are directly involved with eCRM adoption. The target population therefore consisted of the following: Information Technology (IT) department staff; Maintenance Control Centre staff; Sales and Marketing staff, Operations (Call Center) department staff and Hardware vendors.

3.4 Sampling Procedure

Orange Kenya has over 2000 employees and not all use eCRM in their day to day operations. The study undertook to sample just a few departments in Nairobi that use eCRM to serve customers on day to day basis. To overcome the limitations of this study the researcher employed stratified sampling and simple random sampling to select one hundred and fifteen (115) respondents from the target population of one hundred and forty five (145). The researcher categorized the respondents into five (5) strata namely: Information Technology (IT) department staff,

Maintenance Control Centre staff, Sales and Marketing staff, Operations (Call Center) staff and Hardware vendors. Simple random sampling was then used to proportionately select respondents from each stratum at 90% representative of the study's population. According to Mugenda and Mugenda (2003) a good sample population should be in the range of 10% to 30% of the entire population, this study selected 79% of the entire population, which is well above the recommended threshold of 30%.

Table 3.1: Sampled Departments

	Population size (N)	**Sample size (n)**	**Proportion**
Information Technology (IT) department staff	30	30	100%
Hardware Vendors	10	10	100%
Maintenance Control Centre staff	25	25	100%
Sales and Marketing staff	20	20	100%
Operations (Call Center) staff	60	30	50%
TOTAL	**145**	**115**	**79.3%**

Due to the small number of employees in some departments, in those strata with less than 30 respondents, all the employees were interviewed except for the Call Centre staff numbering 60; we envisage interviewing only 50% of them, that's 30 staff.

3.5 Data Collection

This study collected both primary and secondary data relating to electronic customer relationship management (eCRM) at Orange Kenya. Primary data was collected by use of a questionnaire. The questionnaire contain open and closed ended questions and is divided into four sections, A, B, C and D. Section A focus on the demographics of the respondent while section B focus on the evolving role of eCRM in telecommunication companies and C focus on the framework for implementation of eCRM while Section D focuses on framework for evaluation of eCRM performance. The questionnaires were dropped and picked from the respondent after a reasonable period of time. Secondary data was gathered from company reports, publications and other literature relating to eCRM within the Kenyan telecommunications industry.

3.6 Reliability and Validity of the Instrument

3.6.1 Pilot Test Report

A pilot study was first carried out with 10 employees, who were not included in the actual survey but were part of the sample population of 145. The pilot study enabled the researcher to be familiar with research and its administration procedure as well as identifying items that require modification. The result helped the researcher to correct inconsistencies arising from the instruments, which ensured that they measured what was intended. Reliability refers to the consistency of measurement and is frequently assessed using the test–retest reliability method. Reliability is increased by including many similar items on a measure, by testing a diverse sample of individuals and by using uniform testing procedures. Reliability of the research instrument was enhanced through a pilot study that was done with 10 employees. The pilot data was not to be included in the actual study. The pilot study allowed for pre-testing of the research instrument. The clarity of the instrument items to the respondents was established so as to enhance the instrument's reliability.

3.6.2 Reliability Analysis

Reliability of the questionnaires was evaluated through Cronbach's Alpha which measures their internal consistency. The Alpha measures internal consistency by establishing if a certain item measures the same construct. Nunnally (1978) established the Alpha value threshold at 0.6 which the study benchmarked against. Cronbach Alpha was established for every objective in order to determine if each scale (objective) would produce consistent results should the research be done later on. The study found that the instrument had reliability (α=0.885). This illustrates that all the four scales were reliable as their reliability values exceeded the prescribed threshold of 0.6, thus the instrument was reliable to use in collecting data as it will help to achieve the desired research objective.

3.7 Data Analysis

Before processing the responses, the completed questionnaires were edited for completeness and consistency. A content analysis and descriptive analysis were employed. The content analysis was used to analyze the respondents' views about implementation of eCRM framework for telecommunication sector. The data was coded to enable the responses to be grouped into various categories. Descriptive statistics such as means, median, mode and standard deviation was used to help in data analysis. Tables and other graphical presentations as appropriate were used to present the data collected for ease of understanding and analysis. The study used ANOVA (Analysis of Variance) to test the research hypothesis while Pearson product moment correlation was used for

correlation analysis. Regression analysis and Factor Analysis, will be used to study the three independent factors in isolation.

A multivariate regression model was applied to determine the relative importance of each of the variables with respect to implementation of eCRM in telecommunications sector.

CHAPTER FOUR:

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents the analysis and findings of the research. The study population target was 115 respondents, 103 of the respondents filled and returned their questionnaires, constituting 89.6% response rate. Data analysis was done using Statistical Package for Social Scientists (SPSS). Descriptive statistics was used to analyze the data. In the descriptive statistics, relative frequencies were used in some questions and others were analyzed using mean scores, standard deviation and correlation analysis; a statistical technique that can show whether and how strongly pairs of variables are related. ANOVA (**AN**alysis **O**f **VA**riance) was used in hypothesis testing.

4.2.1 Interpretation of the results

In the proceeding results, the analysis was done using mean in the range of 0 to 5 inclusive, whereby:

If the mean was between 0 and 1.499, then it falls in the category of very valid extent; we awarded it a scale of 1 in the questionnaire.

If the mean was between 1.5 and 2.499, we say it falls in the category of valid extent; we awarded it a scale of 2 in the questionnaire.

If the mean was between 2.5 and 3.499, we say it falls in the category of moderate extent; we awarded it a scale of 3 in the questionnaire.

If the mean was between 3.5 and 4.499, we say it falls in the category of invalid extent; we awarded it a scale of 4 in the questionnaire.

If the mean was between 4.5 and 5, we say it falls in the category of very invalid extent; we awarded it a scale of 5 in the questionnaire.

4.2.2 Standard deviation interpretation

The standard deviation was analyzed as either low or high depending on whether the deviation value was less or more than 1. If the standard deviation is less than 1 we say that this is low standard deviation which is an indication that the respondent did not differ much in their opinion, an indication that respondents almost said the same thing.

If the standard deviation is greater than one, we say it is high standard deviation, an indication that respondents differed much in their opinion.

4.3 Analysis of Respondents demographic

4.3.1 Respondent Designation

From the findings on the designation of the respondent, the study found that respondents were in various designations which included Information Technology (IT) department staff, Hardware vendors, Maintenance Control Centre staff, Sales and Marketing staff and Operations (Call Center) department staff. The study found that the respondent were actively involved in eCRM implementation and usage and thus appropriate to give credible information to the study.

Proportions of respondents by:

4.3.2 Role in the implementation of eCRM

From the findings on the respondents' role in the implementation of eCRM, the study found that 28.2% of the respondents indicated that they were Operations (Call Center) staff, 25.2% of the respondents indicated that they were Information Technology staff, 20.4% of the respondents indicated that they were Maintenance Control Centre staff, 17.5% of the respondents indicated that they were sales and Marketing staff, whereas 8.7% of the respondents indicated that they were Hardware Vendors, this is an indication that respondent had varying roles in the implementation of eCRM at Orange .

The table 4.1 below shows the results on the role the respondents play in the implementation of eCRM.

Departments under Review	Total No. of respondents	Frequency	Percent
Information Technology (IT) staff	30	26	25.2
Hardware Vendor	10	9	8.7
Maintenance Control Centre staff	25	21	20.4
Sales and Marketing staff	20	18	17.5
Operations (Call Centre) staff	60	29	28.2
Total	**145**	**103**	**100.0**

Table 4.1: Role of respondents in the implementation of eCRM

4.3.3 Length of service with the organization

From the findings on the respondents' length of engagement with the organization, the study found that 35% of the respondents indicated that they had worked for the organization for over 7 years, 28.2% of the respondents indicated that they had worked for the organization for 5 to 7 years, 23.3% of the respondents indicated that they had worked for the organization for 2 to 4 years whereas13.6% of the respondents indicated that they had worked for the organization for less than 2 years. The study also revealed that the nature of service in the implementation of eCRM at the organization were software development, supply of Hardware, Technical Support for End-users, Call Center and Administration.

Table 4.2 below show the results on the respondent years of service in the organization.

Length of service	Frequency	Percent
Less than 2 years	14	13.6
2 to 4 years	24	23.3
5 to 7 years	29	28.2
Over 7 years	36	35.0
Total	**103**	**100.0**

Table 4.2: Length of service with the organization

4.4 Evolving Role of ECRM in Telecommunication Companies

This section presents the respondent opinion on the various aspects of the role that various factors play in ECRM implementation in the telecommunications companies.

4.4.1 Importance of the various factors in the implementation of eCRM

On the respondent rating the importance of items that best reflects the importance of the particular factor in the implementation of eCRM in the organization, the study found that the following were traded as very important; number of complaints as shown by mean of 1.150, system errors as shown by mean of 1.250, centralized data base as shown by mean of 1.373, call response time as shown by mean of 1.400 and service time as shown by mean of 1.450, the study further revealed that reporting was rated important as shown by mean of 1.7.

Table 4.3 below presents the results on the respondent rating of various factors affecting the implementation of eCRM.

Factors to measure impact of eCRM Implementation	Mean	Std deviation
Service time	1.450	.688
System errors	1.250	.618
Number of complaints	1.150	.793
Call response time	1.400	.488
Centralized database	1.373	.558
Reporting	1.700	.683

Table 4.3: Importance of the particular factors in the implementation of eCRM

4.4.2 Validity of Various Statements As Regards to the Customer Churn

From the findings on the respondent rating the validity of various statements in regard to the customer churn at the organization, the study found that majority of the respondent rated the following as being valid; Increased positive customer feedback as shown by 1.650, Increased repurchase orders as shown by mean of 1.700, Customer retention as shown by mean of 1.800 and Increased Customer Base as shown by mean of 2.450. The study also revealed that the key factors that affect the implementation of eCRM at Orange Kenya were; people, processes and technology.

Table 4.4 present the research findings on respondent rating validity of various statements in regards to the customer churn at the organization

Customer Churn Factors	Mean	Std deviation
Customer retention	1.800	.737
Increased repurchase orders	1.700	.703
Increased Customer Base	2.450	.584
Increased positive customer feedback	1.650	.592

Table 4.4: Response of validity of various statements as regards to the customer churn

4.4.3 Validity of various statements in regard to the customer sales

From the findings on the respondent rating various statements in regard to customer sales and lifetime value at the organization, the study found that the majority of respondent rated the following as valid; Customer period with company as shown by mean of 1.860, Increased service cessations as shown by mean of 1.992 and Increased customer sales volumes as shown by mean of 2.051. The study further revealed that decreased customer compliments was rated as very invalid as shown by mean of 4.639. The study found that respondent strongly agreed that eCRM at Orange Kenya has had a positive return on investment and has achieved the desired results. It was also established that it is not necessary to figure out an absolute Lifetime Value for a customer or wait "a lifetime" to find out the value to get to know the way of managing value in customers, it can be done by captured statistics.

Table 4.5 shows the results on validity of each statement as regard to customer sales

Customer Sales Factors	Mean	Std deviation
Customer period with company	1.860	.683
Increased service cessations	1.992	.738
Increased customer sales volumes	2.051	.706
Decreased customer compliments	4.639	.584

Table 4.5: Responses on validity of various statements in regard to the customer sales

4.4.4 Validity of various statements regarding reduction of operational costs

On the respondent rating validity of each statement as regards to reduction of operational costs at the organization, the study found that the following statements were regarded as valid; Reduced expenditure as shown by mean of 1.511, Improved cash flow for department as shown by mean of 1.551, Increased movement of products as shown by mean of 1.720 and Reduced salaries and overhead costs as shown by mean of 1.727. The study further revealed that respondent rated the current organization's performance with regards to eCRM as profitable and growing. The study also established that the support that the management should adopt in order to improve eCRM at the organization were; staff training, financial investment, outsourcing, technological investment and re-structuring.

Table 4.6 present the research findings on respondent rating validity of various statements in regards to the operational costs at the organization

Operational Cost factors	Mean	Std deviation
Increased movement of products	1.720	.545
Improved cash flow for department	1.551	.547
Reduced expenditure	1.511	.619
Reduced salaries and overhead costs	1.727	.892

Table 4.6: Responses on validity of various statements regarding reduction of operational costs

4.5 Factors on the Implementation of E-CRM

This section covers the respondent opinion on the various factors affecting the implementation of ECRM.

4.5.1 Individual factors on the implementation of eCRM

From the findings on level of agreement on various aspect individual factors on the implementation of eCRM; the study found that majority of the respondent agreed that Executive's internet experience has an effect on the implementation of eCRM application as shown by mean of 1.656, Executive's self-efficacy has an effect on the implementation of eCRM application as shown by mean of 1.713, Executive's innovativeness has an effect on the implementation of eCRM application as shown by mean of 1.808, Executive's attitude towards eCRM has an effect on the implementation of eCRM application as shown by mean of 1.864 and Executive's subjective norm has an effect on the implementation of eCRM application as shown by mean of 2.121.

Table 4.7 shows the results on respondent level of agreement on various aspect individual factors on the implementation of eCRM.

Executives role in eCRM Implementation	**Mean**	**Std deviation**
Executive's attitude towards eCRM has an effect on the implementation of eCRM application	1.864	.909
Executive's subjective norm has an effect on the implementation of eCRM application	2.121	.634
Executive's self-efficacy has an effect on the implementation of eCRM application	1.713	.869
Executive's innovativeness has an effect on the implementation of eCRM application	1.808	1.041
Executive's internet experience has an effect on the implementation of eCRM application	1.656	.968

Table 4.7: Level of agreement on aspect individual factors on the implementation of eCRM

4.5.2 Organizational factors on the implementation of eCRM

From the findings on the respondent level of agreement on various aspect of various aspect organizational factors on the implementation of eCRM, the study found that respondent strongly agreed that firm's size in regard to total capital investment has an effect on the implementation of eCRM application as shown by mean of 1.382, respondent agreed that Business experience has an effect on the implementation of eCRM application as shown by mean of 1.654, Technological expertise has an effect on the implementation of eCRM application as shown by mean of 1.698, Financial resource has an effect on the implementation of eCRM application as shown by mean of 1.702 and Firm's size in regard to number of employees has an effect on the implementation of eCRM application as shown by mean of 2.205.

Table 4.8 shows the results on respondent level of agreement on various aspect organizational factors on the implementation of eCRM.

Organizational Factors on eCRM Implementation	Mean	Std deviation
Firm's size in regard to number of employees has an effect on the implementation of eCRM application	2.205	.811
Firm's size in regard to total capital investment has an effect on the implementation of eCRM application	1.382	.614
Financial resource has an effect on the implementation of eCRM application	1.702	.673
Technological expertise has an effect on the implementation of eCRM application	1.698	.685
Business experience has an effect on the implementation of eCRM application	1.654	.845

Table 4.8: Rating various aspect organizational factors on the implementation of eCRM

4.5.3 Technological factors on the implementation of eCRM

On the level of agreement on various aspect technological factors on the implementation of eCRM; the study found that respondent strongly agreed that Observability has an effect on the implementation of eCRM application as shown by mean of 1.496, respondent further agreed that compatibility has an effect on the implementation of eCRM application as shown by mean of 1.514, Perceived relationship marketing functionality has an effect on the implementation of eCRM application as shown by mean of 1.669, Perceived easiness has an effect on the implementation of eCRM application as shown by mean of 1.786, Trialability has an effect on the implementation of eCRM application as shown by mean of 1.794 and Perceived advantage has an effect on the implementation of eCRM application as shown by mean of 2.176.

Table 4.9 shows the results on respondent level of agreement on various aspect technological factors on the implementation of eCRM.

Technological factors on eCRM Implementaion	Mean	Std deviation
Perceived advantage has an effect on the implementation of eCRM application.	2.176	1.138
Perceived easiness has an effect on the implementation of eCRM application	1.786	.612
Compatibility has an effect on the implementation of eCRM application.	1.514	.613
Observability has an effect on the implementation of eCRM application	1.496	.648
Trialability has an effect on the implementation of eCRM application	1.794	.655
Perceived relationship marketing functionality has an effect on the implementation of eCRM application	1.669	.631

Table 4.9: Rating various aspect technological factors on the implementation of eCRM

4.5.4 Environmental factors on the implementation of eCRM

From the findings on the respondent level of agreement on various aspect environmental factors on the implementation of eCRM; the study found that majority of the respondents strongly agreed that competitive pressure has an effect on the implementation of eCRM application as shown by mean of 1.492. Respondent further agreed that Customer pressure has an effect on the implementation of eCRM application as shown by mean of 1.547, External support has an effect on the implementation of eCRM application as shown by mean of 1.863, Governmental encouragement has an effect on the implementation of eCRM application as shown by mean of 2.025 and Industry pressure has an effect on the implementation of eCRM application as shown by mean of 2.051.

Table 4.10 shows the results on respondent level of agreement on various aspect environmental factors on the implementation of eCRM.

Environmental factors on eCRM Implementation	Mean	Std deviation
Competitive pressure has an effect on the implementation of eCRM application.	1.492	.510
Customer pressure has an effect on the implementation of eCRM application	1.547	.701
Industry pressure has an effect on the implementation of eCRM application	2.051	.756
Governmental encouragement has an effect on the implementation of eCRM application	2.025	.882
External support has an effect on the implementation of eCRM application	1.863	.684

Table 4.1 0: Level of agreement on various aspect environmental factors on the implementation of eCRM

4.6 Factors on implementation of ECRM

This section review the various factors for evaluating ECRM in the telecommunications industry in Kenya, it covers various aspects of ECRM.

4.6.1 Perceived Environmental Uncertainty

From the findings on the respondent level of agreement on the influence of various aspect of Perceived Environmental Uncertainty on the implementation and adoption of ECRM; the study found that respondents agreed that they believe that, compared with rival firms, our organization has more difficulty in predicting business and technological obsolescence as shown by mean of 1.515, they believe that it is difficult for our organization to foresee the likelihood and determine the impact of potential security risks that may threaten the survival of the organization as shown by mean of 1.637, they believe that our organization cannot identify and interpret the sources and potential consequences of environmental volatility as shown by mean of 1.726 and they believe that our organization cannot anticipate the business and computer risks resulting from changes in the technological and business environments as shown by mean of 2.051.

Table 4.11 shows the results on the influence of various aspects of Perceived Environmental Uncertainty on the implementation of ECRM.

Perceived Environmental Uncertainty	Mean	Std deviation
We believe that our organization cannot anticipate the business and computer risks resulting from changes in the technological and business environments.	2.051	.7063
We believe that it is difficult for our organization to foresee the likelihood and determine the impact of potential security risks that may threaten the survival of the organization	1.637	.5844
We believe that our organization cannot identify and interpret the sources and potential consequences of environmental volatility	1.726	.5452
We believe that, compared with rival firms, our organization has more difficulty in predicting business and technological obsolescence	1.515	.5765

Table 4.11: Influence of various aspect of Perceived Environmental Uncertainty on the implementation of ECRM

4.6.2 Perceived Gain in Competitive Advantage

On the influence of various aspect of Perceived Gain in Competitive Advantage on the adoption of ECRM; the study found that respondents agreed that they believe that the adoption of ECRM management makes our organization more efficient than other firms as shown by mean of 1.510, they believe that the adoption of ECRM allows our organization to manage our resources better than other firms as shown by mean of 1.729, they believe that the adoption of ECRM makes our business processes more efficient than other firms, as shown by mean of 1.860, and they believe that the adoption of ECRM allows our organization to generate more business opportunities than other firms as shown by mean of 2.123.

Table 4.12 shows the results on the influence of various aspect of Perceived Gain in Competitive Advantage on the implementation of ECRM.

Table 4.12: Influence of various aspect of Perceived Gain in Competitive Advantage on the implementation of ECRM

Perceived Gain in Competitive Advantage	Mean	Std deviation
We believe that the adoption of ECRM management makes our organization more efficient than other firms	1.510	.6139
We believe that the adoption of ECRM allows our organization to manage our resources better than other firms.	1.729	.8950
We believe that the adoption of ECRM makes our business processes more efficient than other firms.	1.860	.9099
We believe that the adoption of ECRM allows our organization to generate more business opportunities than other firms.	2.123	.6319

4.6.3 Availability of Resources

From the findings on the influence of various aspect of Availability of Resources on the implementation of ECRM; the study found that respondents strongly agreed that compared with other firms, our organization has a more flexible infrastructure to efficiently support ECRM adoption as shown by mean of 1.088, respondents agreed that compared with other firms, our organization has more efficient and streamlined business processes that could result in successful adoption of ECRM as shown by mean of 1.566 and compared with other firms, our organization has more human resources that could be used for ECRM as shown by mean of 1.732.

Availability of Resources	Mean	Std deviation
Compared with other firms, our organization has more human resources that could be used for ECRM	1.732	.8647
Compared with other firms, our organization has a more flexible infrastructure to efficiently support ECRM adoption	1.088	.4521
Compared with other firms, our organization has more efficient and streamlined business processes that could result in successful	1.566	.9890

Table 4.13 shows the results on the influence of various aspect of Availability of Resources on the implementation of ECRM.

Table 4.13: Influence of various aspect of Availability of Resources on the implementation of ECRM

4.6.4 Top Management Support

On the influence of various aspect of top management support on the implementation of ECRM; the study found that respondent strongly agreed that the senior management of our organization demonstrates support for ECRM adoption as shown by mean 1.324, respondent further agreed that the senior management of our organization is involved in the decision-making process of ECRM adoption as shown by mean 1.644, that the senior management of our organization establishes processes and standards to monitor ECRM adoption as shown by mean of 1.685 and that the senior management of our organization formulates a strategy for the introduction of eCRM adoption as shown by mean of 1.722.

Table 4.14 shows the results on the Influence of various aspect of Top Management Support on the implementation of ECRM

Influence of Top Management Support	Mean	Std deviation
The senior management of our organization demonstrates support for ECRM adoption.	1.324	.6421
The senior management of our organization formulates a strategy for the introduction of ECRM adoption.	1.722	.6337
The senior management of our organization establishes processes and standards to monitor ECRM adoption.	1.685	.6532
The senior management of our organization is involved in the decision-making process of ECRM adoption.	1.644	.8503

Table 4.1 4: Influence of various aspect of Top Management Support on the implementation of ECRM

4.6.5 IT Capability

From the findings on the influence of various aspect of IT Capability on the implementation of ECRM; the study found that respondent strongly agreed that our organization has strong IT leadership as shown by mean of 1.165, respondent agreed that our organization has enough experience with IT as shown by mean of 1.517, our organization has competent IT staff as shown by mean 1.578, our organization has strong IT planning capability as shown by mean 1.768, our organization has established a security policy, objectives, targets, and processes relevant to managing risks and improving ECRM in order to deliver results in accordance with the organization's overall policies and objectives as shown by mean 2.027, our organization perceives the importance of strategic use of IT as shown by mean of 2.055 and our organization has implemented and operated information security, policy, controls, and processes as shown by mean of 2.259.

Table 4.15 shows the results on the influence of various aspect of IT Capability on the implementation of ECRM.

Influence of IT Capability on Adoption of eCRM	**Mean**	**Std deviation**
Our organization has strong IT leadership	1.165	.1393
Our organization has strong IT planning capability	1.768	.6139
Our organization has enough experience with IT	1.517	.6132
Our organization has competent IT staff	1.578	.7155
Our organization perceives the importance of strategic use of IT	2.055	.7696
Our organization has established a security policy, objectives, targets, and processes relevant to managing risks and improving ECRM in order to deliver results in accordance with the organization's overall policies and objectives	2.027	.8201
Our organization has implemented and operated information security, policy, controls, and processes	2.259	.8152

Table 4.15: Influence of various aspect of IT Capability on the adoption of ECRM

4.6.6 Cultural Acceptability

From the findings on the influence of various aspect of cultural acceptability on the implementation of ECRM; the study found that respondent strongly agreed that our organization is dynamic to be first with competitive actions, outcomes and achievements as shown by mean of

1.426 and our organization is committed to innovation and change as shown by mean of 1.463, respondent agreed that our organization emphasizes growth through acquiring new resources and standards as shown by mean 1.691, our organization is willing to take risks as shown 1.741, our organization is willing to change formal rules and policies as shown by 1.907 and our organization has assessed and measured process performance against security policy, objectives and practical experience and reported the results to management for review as shown by mean of 1.985.

Table 4.16 shows the results on the influence of various aspect of Cultural Acceptability on the implementation of ECRM.

Influence of various aspects on Cultural acceptability	**Mean**	**Std deviation**
Our organization is committed to innovation and change	1.463	.6858
Our organization is willing to take risks.	1.741	.6558
Our organization emphasizes growth through acquiring new resources and standards	1.691	.6393
Our organization is dynamic to be first with competitive actions, outcomes and achievements	1.426	.5087
Our organization is willing to change formal rules and policies.	1.907	.8679
Our organization has assessed and measured process performance against security policy, objectives and practical experience and reported the results to management for review	1.985	.5397

Table 4.1 6: Influence of various aspect of Cultural Acceptability on the implementation of ECRM

4.7 Regression analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.874[a]	.764	.731	.12225

Table 4.17: Model Summary

Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable, from the findings in the above table the value of adjusted R squared was 0.731 an indication that there was variation of 73.1% on the eCRM implementation due to changes in supervising authority influence, peer influence and institutional

influence at 95% confidence interval. This shows that 81.5 % changes in eCRM implementation could be accounted for supervising authority influence, peer influence and institutional influence. R is the correlation coefficient which shows the relationship between the study variables, from the findings shown in the table above there was a strong positive relationship between the study variables as shown by 0.874.

4.7.1 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.878	.357		2.459	.016
	Supervisory Authority	.305	.097	.402	3.145	.002
	Institutional influence	.245	.093	.091	.760	.449
	Peer Pressure Influence	.158	.100	.183	1.583	.117

Table 4.18 Coefficients

The established regression equation was

$Y = 0.878 + 0.305\ X_1 + 0.245\ X_2 + 0.158\ X_3 + 0.245$ e (an accounted for)

From the above regression equation it was revealed that holding Supervision authority influence, Institutional influence and peer pressure to a constant zero, eCRM implementation would stand at 0.878, a unit increase in supervision influence would lead to increase in e-CRM implementation by a factors of 0.305, unit increase in Institutional influence would lead to increase in e-crm implementation by factors of 0.245 and unit increase in peer pressure influence would lead to increase in e-CRM implementation by a factor of 0.158. A multivariate regression model was applied to determine the relative importance of each of the variables with respect to implementation of eCRM in telecommunications sector.

From the findings, Supervision authority ranked as the most critical factors influencing adoption of eCRM by telecommunication companies in Kenya, followed by factors related with Institutional influence and finally the peer pressure factors.

4.8 Correlations Analysis

Table 4.17 shows correlation results on the various aspect of implementation framework of ECRM.

MODERATING FACTORS		Implementation of eCRM	Perceived Environmental Uncertainty	Perceived Gain in Competitive Advantage	Availability of Resources	Top Management Support	IT Capability	Cultural Acceptability
Implementation of eCRM	Pearson Correlation	1	.668**	.5275**	.543	.715**	.608**	.371
	Sig. (2-tailed)		.000	.000	.000	.002	.0021	.005
	N	103	103	103	103	103	103	103
Perceived Environmental Uncertainty	Pearson Correlation	.668**	1	.107	.327**	-.014	.293	-.080**
	Sig. (2-tailed)	.000		.002	.000	.015	.000	.186
	N	103	103	103	103	103	103	103
Perceived Gain in Competitive Advantage	Pearson Correlation	.5275**	.107	1	.009**	.478	-.026	.184**
	Sig. (2-tailed)	.000	.000		.0.0278	.000	.000	.002
	N	103	103	103	103	103	103	103
Availability of Resources	Pearson Correlation	.543**	.327**	.009	1**	.053**	.577	.225**
	Sig. (2-tailed)	.000	.000	0.02		.001	.000	.000
	N	103	103	103	103	103	103	103
Top Management Support	Pearson Correlation	.715	-.014	.478**	.053	1	.258**	.206
	Sig. (2-tailed)	.001	0.00	.000	0.01		.000	.001
	N	103	103	103	103	103	103	103
IT Capability	Pearson Correlation	.608	.293**	-.026	.577	.258**	1	.232
	Sig. (2-tailed)	.005	.000	.020	.000	.000		.000
	N	103	103	103	103	103	103	103
Cultural Acceptability	Pearson Correlation	.371**	-.080	.184**	.225**	.206	.232**	1**
	Sig. (2-tailed)	.005	.186	.002	.000	.001	.000	
	N	103	103	103	103	103	103	103

Table 4.19: Correlations

From the correlation results, it was found that Top Management Support, Perceived Environmental Uncertainty, IT Capability, Perceived Gain in Competitive Advantage, Availability of Resources and Cultural Acceptability had positive strong relationship with eCRM implementation by positive correlation coefficients which were found to be statistically significant except for Perceived Environmental Uncertainty and Availability of Resources, which were found not to be less significant, but were positively associated with implementation of eCRM as shown by above average Pearson Correlation of 0.668 and 0.543.

The Perceived environmental uncertainty, Perceived gain in competitive Advantage and Availability of Resources have low significance levels of 0.000 but strong positive Pearson Correlations of 0.668, 0.5275 and 0.543 respectively, meaning that eCRM implementation is strongly related to the three moderators and significant to eCRM implementation

Comparing Perceived Environmental Uncertainty Versus Top Management Support that have negative Person Correlations of -0.014 and Availability of Resources versus IT Capability that have low significance of 0.000, the first pair is negatively co-related, for example as Top Management Support goes in top gear, thus increases, Environmental Uncertainty decrements while the second pair shows that as Resources become unavailable, IT Capability in the organization becomes a mirage.

The high Pearson Correlation value of Top Management Support versus eCRM Implementation of 0.715 shows that successful eCRM implementation has a strong bearing on how much Top Management Support is given, if Top Management Support fades, eCRM Implementation success might not be achieved.

From the table above, the Significance level (2-tailed) is 0.000 for Implementation of eCRM, Perceived environmental uncertainty and Perceived gain in competitive advantage 0.001 for Top management support and 0.005 for Cultural acceptability which show that all the moderating factors are significant to this study.

We have used a Standard Normal Distribution Table to confirm that all the six moderating factors are significant to eCRM implementation.

4.9 Factor Analysis

Together with correlation analysis, factor analysis was done to establish the relationships among the study variables. In particular, factor analysis procedure was used to measure and establish implementation framework for eCRM in telecommunication sector in Kenya. This method was necessary to reduce a set of several difficult to interpret correlated variables to few conceptually meaningful relatively independent factors, which could be easily interpreted. This technique was applied to summarize 46 latent variables or sub-variables representing dominant success factors that can explain eCRM implementation. To make interpretation easier, a linear transformation on the factor solution, varimax rotation was done, which gave fewer components (factors) that are uncorrelated with one another.

The purpose of this paper was to develop an implementation framework for eCRM in the telecommunications sector in Kenya. This was addressed by using factor analysis. The preliminary tests employed the use of Kaiser Mayer-Olkim (KMO) and Barlett's Test. In this case, KMO measures the sampling adequacy which should be greater than 0.5 for a satisfactory analysis to proceed. From the analysis, the KMO measure was 0.583, an indication that the Barlett's Test of sphericity is significant. In order to determine the number of factors to retain, the factors with eigenvalue greater or equal to one were retained. This was further illustrated by using the scree plot which indicates that the screes started to tee-off after factor 10 showing that only 10 factors out of 46 variables can explain the existing models for implementation of ECRM in telecommunications sector (Figure 4.1)

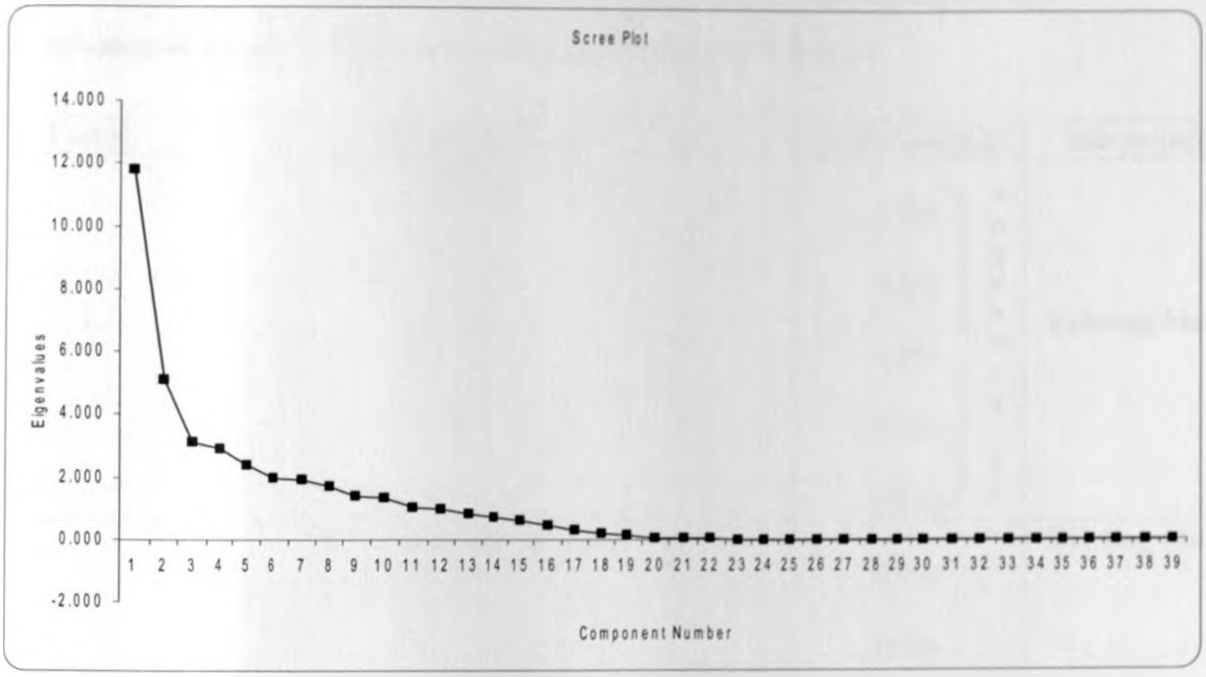


Figure 4.1: Scree Plot for the Supply Chain Management Variables

The items were grouped based on the magnitude of their factor loadings in all the corresponding factor components in this case, there are 10 factor components implying that the 46 variables (see table 1) could be reduced into 10 factors constituting the factors that influences the level of implementation of eCRM as shown in Table 2 below. An item is considered to belong to a factor component if its factor loading corresponds to that particular component and is relatively higher than its factor loadings in the other factor components. For example, variable 1-5 belongs to component one because its factor loading of 0.706-842 is relatively higher than any other loadings within the components and so on.

Table A.1 Variables which constitute the factors that influences the implementation of eCRM by telecommunication sectors in Kenya (Appendix II)

Factor Reduction for Variables which constitute the factors that influences the implementation of eCRM by telecommunication sectors in Kenya

Factor	Item Description	Factor Loadings	Interpretation
1	• Individual Factors	0.706 0.862 0.883 0.802 0.842	**Existing Model**
2	• Organization factors	0.798 0.754 0.669 0.679	**Existing Model**
3	• Technological factors	0.806 0.811 0.762 0.635 0.636	**Existing Model**
4	• Environmental factors	0.837 0.817 0.817 0.798 0.727 0.649	**Existing Model**
5	• Perceived Environmental Uncertainty	0.650 0.634	**Moderating Factors** Anticipate the business and

Appendix II

		0.603 0.632	computer risks resulting from changes in the technological and business environments
6	• Perceived Gain in Competitive Advantage	0.794 0.770 0.754 0.691	**Moderating Factors** Believe that the adoption of ECRM allows our organization to manage our resources better than other firms
7	• Availability of Resources	0.741 0.768 0.726	**Moderating Factor** flexible infrastructure to efficiently support ECRM
8	• Top Management Support	0.967 0.927 0.969 0.845	**Moderating Factor** Senior management of our organization formulates a strategy for the introduction of eCRM adoption
9	• IT capability	0.682 0.636 0.653 0.689	**Moderating Factors** IT Capability on the implementation of ECRM
10	• Cultural Acceptability	0.751 0.673 0.641	**Moderating Factor** Competencies required to manage ECRM

		0.602 0.596	implementation strategy

Table 4.20: Factor Reduction for Variables which constitute the factors that influences the implementation of eCRM by telecommunication sectors in Kenya

In conclusion, 10 most critical success factors that influences implementation of Ecrm which will be used to develop a model for implementation of electronic customer relationship management (eCRM) in telecommunications sector by analyzing the existing models for implementation of ECRM in telecommunications sector. Institution influence factors, peer influence factors and supervisory factors moderated by environmental uncertainty, perceived gain of competitive advantage, availability of resources, top management support, IT capability and cultural acceptability. These practices are universal and in line with the findings of other studies (Porter 1985, Caldries and van Diedonck 1988, Mentzer and Konrad 1991, Rich and Hines 1997, Cox 1999, Kilpatrick et al., 2000 and Stanley and Gregory 2001).

Factor loading like for individual factors, 0.706, 0.862, 0.883, 0.802 and 0.842 are derived from Appendix II; Variables which constitute the factors that influences the implementation of eCRM by telecommunication sectors in Kenya which are in turn derived from the factors listed in questionnaire in Appendix I.

4.10 Hypothesis testing using ANOVA

Using SPSS, the critical value established from the respondent distribution table at 5% (0.05) significance level and 102 degree of freedom (df) was 1.967

Hypothesis1: *The greater the level of environmental uncertainty perceived by an organization, the greater the likelihood that the organization will conform to institutional pressures peer influence and supervisory authority influence to implement eCRM.*

On comparing the critical and the calculated value (1.498 < 1.967), the calculated value is less than the critical value, this lead to the acceptance of the hypothesis that the greater the level of environmental uncertainty perceived by an organization, the greater the likelihood that the organization will conform to institutional pressures, peer influence and supervisory authority influence to implement eCRM.

ANOVA

Level of environmental uncertainty perceived by an organization

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	325.061	2	11.265	1.498	.000
Within Groups	482.471	102	01.222		
Total	807.532	104			

Hypothesis2: *The greater the gain in competitive advantage perceived by an organization, the greater the likelihood that the organization will conform to institutional pressures peer influence and supervisory authority influence to implement eCRM.*

On comparing the critical value and the calculated value (1.159 < 1.967), the calculated value is less than the critical value, this lead to the acceptance of the hypothesis that the greater the gain in competitive advantage perceived by an organization, the greater the likelihood that the organization will conform to institutional pressures peer influence and supervisory authority influence to implement eCRM.

ANOVA

Level of environmental uncertainity perceived by an organization

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	301.021	2	9.265	1.159	.002
Within Groups	182.471	102	02.011		
Total	607.500	104			

Hypothesis 3: *The greater the availability of organizational resources, the greater the likelihood that the organization will conform to institutional pressures peer influence and supervisory authority influence to implement eCRM*

On comparing the critical value and the calculated value (0.507 < 1.967), the calculated value is less than the critical value, this lead to the acceptance of the hypothesis that the greater the availability of organizational resources, the greater the likelihood that the organization will conform to institutional pressures peer influence and supervisory authority influence to implement eCRM.

ANOVA

Level of environmental uncertainity perceived by an organization

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	301.021	2	7.265	0.507	.002
Within Groups	282.471	102	2.011		
Total	583.500	104			

Hypothesis 4: *The greater the top management support, the stronger the relationships between institutional influences peer influence and supervisory authority influence and implementation of eCRM.*

On comparing the critical value and the calculated value (0.909 < 1.967), the calculated value is less than the critical value, this lead to the acceptance of the hypothesis that the greater the availability of organizational resources, the greater the likelihood that the greater the top management support, the stronger the relationship between institutional influences peer influence and supervisory authority influence and implementation of eCRM.

ANOVA

Level of environmental uncertainity perceived by an organization

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	301.021	2	8.265	0.909	.002
Within Groups	182.471	102	02.011		
Total	607.500	104			

Hypothesis5: *The greater an organization's IT capability, the stronger the relationship between institutional influences peer influence and supervisory authority influence and implementation of eCRM.*

On comparing the critical value and the calculated value (1.907 < 1.967), the calculated value is less than the critical value, this lead to the acceptance of the hypothesis that the greater the availability of organizational resources, the greater the likelihood that the greater an organization's IT capability, the stronger the relationship between institutional influences peer influence and supervisory authority influence and implementation of eCRM.

ANOVA

Level of environmental uncertainity perceived by an organization

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	301.021	2	9.265	1.907	.000
Within Groups	287.471	102	8.011		
Total	584.494	104			

Hypothesis 6: *The higher the cultural acceptability of innovation, the stronger the relationship between institutional influences peer influence and supervisory authority influence and implementation of eCRM.*

On comparing the critical value and the calculated value (1.045 < 1.967), the calculated value is less than the critical value, this lead to the acceptance of the hypothesis that the greater the availability of organizational resources, the greater the likelihood that the greater an organization's IT capability, the stronger the relationship between institutional influences peer influence and supervisory authority influence and implementation of eCRM.

ANOVA

Level of cultural acceptability

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	301.021	2	8.265	1.045	.000
Within Groups	182.471	102	02.011		
Total	607.500	104			

4.11 : Validated Framework Model for ECRM implementation

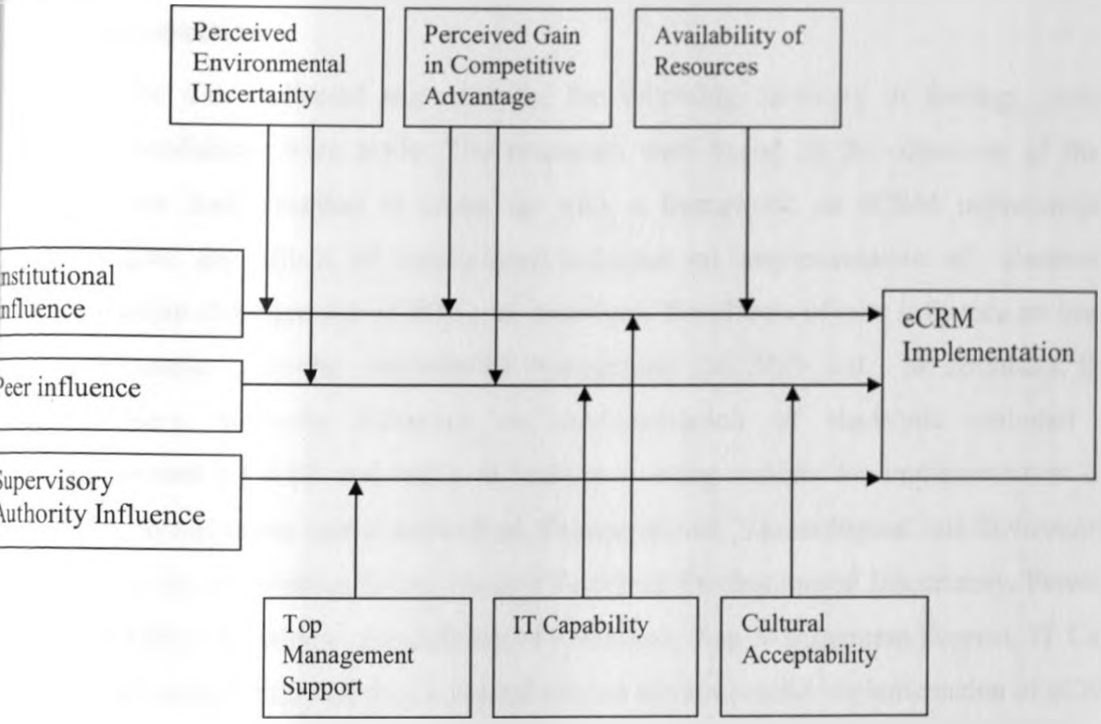


Figure 4.1: Validated Framework Model for ECRM implementation

The framework starts by a pre-implementation phase where the organization has to gain the support of top management for implementing CRM before getting to the actual implementation process. Based on gaining sufficient commitment by top management the process could proceed to assessing the readiness of the organization in terms of its human, technological, and organizational (process) capabilities to implement CRM. Therefore, the eCRM strategy should be developed, aligned, and communicated to staff.

Perceived Environmental Uncertainty, Perceived Gain in Competitive Advantage, Availability of Resources and IT Capability impacts directly on
Institutional Influence

Peer Influence is affected by Perceived Environmental Uncertainty, Perceived Gain in Competitive Advantage and Cultural Acceptability moderating factors.
Top Management Support impacts on Supervisory Authority Influence

CHAPTER FIVE:

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

From the data collected and analysis, the following summary of findings, conclusions and recommendations were made. The responses were based on the objectives of the study. The researcher had intended to come up with a framework on eCRM implementation and to investigate the effects of institutional influence on implementation of electronic customer relationship management (eCRM), to investigate the effects of peer influence on implementation of electronic customer relationship management (eCRM) and to determine the effect of supervisory authority influence on implementation of electronic customer relationship management (eCRM) and lastly to analyze existing models for implementation of ECRM in telecommunications sector. Individual, Organizational, Technological and Environmental factors aided by six moderating factors namely Perceived Environmental Uncertainty, Perceived Gain in Competitive Advantage, Availability of Resources, Top Management Support, IT Capability and Cultural Acceptability all play a pivotal role on any successful implementation of eCRM.

5.2 How Objectives were met

The study's general objective was to develop an implementation framework for eCRM in the telecommunications sector in Kenya. In Regression analysis, we studied the three independent factors in isolation but realized that they all contribute to the overall research objective of coming up with a framework that was validated and found to be 73.1% applicable in the area of study.

The specific objectives number one, two and three that relate to Institutional Influence, Peer Influence and Supervisory Authority Influence are studied and met with the Mean and Standard Deviations that were worked out on the factors that influence CRM implementation as adduced from the questionnaire structured questions that were analyzed in the study.

Specific objective number four, to analyze existing models for implementation of ECRM in telecommunications sector was achieved through Factor Analysis that looked at Factors that affect eCRM implementation through Scree plot and Factor reduction charts in Chapter four

5.3 Summary of findings

The study found that Institutional Influence, Peer Influence and Supervisory Authority Influence to a large extend affect the success of eCRM implementation. The study revealed that other key factors that affect the implementation of eCRM at Orange Kenya were; people, processes and technology.

On various aspects of organizational factors on the implementation of eCRM, the study found that firm's size in regard to total capital investment has an effect on the implementation of eCRM application, respondent agreed that Business experience has an effect on the implementation of eCRM application, technological expertise has an effect on the implementation of eCRM application, financial resource has an effect on the implementation of eCRM application and firm's size in regard to number of employees has an effect on the implementation of eCRM application.

From the findings on various aspect technological factors on the implementation of eCRM, the study found that observability has an effect on the implementation of eCRM application , that compatibility has an effect on the implementation of eCRM application, perceived relationship marketing functionality has an effect on the implementation of eCRM application, perceived easiness has an effect on the implementation of eCRM application, trialability has an effect on the implementation of eCRM application and perceived advantage has an effect on the implementation of eCRM System.

From the findings on various aspect environmental factors on the implementation of eCRM, the study found that competitive pressure has an effect on the implementation of eCRM application, customer pressure has an effect on the implementation of eCRM application, external support has an effect on the implementation of eCRM application, Governmental encouragement has an effect on the implementation of eCRM application and industry pressure has an effect on the implementation of eCRM application.

From the findings on the influence of various aspect of Perceived Environmental Uncertainty on the implementation of ECRM, the study found that compared with rival firms, our organization has more difficulty in predicting business and technological obsolescence, they believe that it is difficult for our organization to foresee the likelihood and determine the impact of potential security risks that may threaten the survival of the organization, they believe that our organization cannot identify and interpret the sources and potential consequences of environmental volatility

and they believe that their organization cannot anticipate the business and computer risks resulting from changes in the technological and business environments.

On the influence of various aspects of Perceived Gain in Competitive Advantage on the adoption of ECRM, the study found that the assimilation of ECRM management makes our organization more efficient than other firms, they believe that the adoption of ECRM makes our business processes more efficient than other firms, they believe that the adoption of ECRM allows our organization to manage our resources better than other firms and they believe that the adoption of ECRM allows our organization to generate more business opportunities than other firms.

From the findings on the influence of various aspect of Availability of Resources on the implementation of ECRM, the study found that our organization has a more flexible infrastructure to efficiently support ECRM implementation, respondent agreed that compared with other firms, our organization has more efficient and streamlined business processes that could result in successful implementation of ECRM and compared with other firms, our organization has more human resources that could be used for ECRM.

On the influence of various aspects of top management support on the implementation of ECRM, the study found that the senior management of our organization demonstrates support for ECRM implementation, that the senior management of our organization is involved in the decision-making process of ECRM implementation, that the senior management of our organization establishes processes and standards to monitor ECRM implementation and the senior management of our organization formulates a strategy for the introduction of ECRM implementation.

From the findings on the influence of various aspect of IT Capability on the implementation of ECRM, the study found that our organization has strong IT leadership, respondent agreed that our organization has enough experience with IT, our organization has competent IT staff, our organization has strong IT planning capability, our organization has established a security policy, objectives, targets, and processes relevant to managing risks and improving ECRM in order to deliver results in accordance with the organization's overall policies and objectives, our organization perceives the importance of strategic use of IT and our organization has implemented and operated information security, policy, controls, and processes.

From the findings on the influence of various aspect of Cultural Acceptability on the implementation of ECRM, the study found that our organization is dynamic to be first with competitive actions. Cultural Acceptability is significant to eCRM Implementation and looking at

the Pearson Correlation, it came out clearly that the two relate at 0.371 Pearson Correlation, this calls for the employees to be in a Culturally Acceptable situation that will support the eCRM implementation, an example is a Culture that embraces Information Society, talk of generation "Y", it will take very small effort to convince an employee that its time the company automated its operations, in fact the employee will prod the Management, asking questions like, "When are we automating?"

5.4 Conclusion

The results of this study provide evidence that the development of regulation in different countries do have an impact on the implementation of ECRM. The findings tend to indicate that at the outset of ECRM implementation, supervisory authority can play a significant role in stimulating and enforcing the implementation of this new customer's management practice. This can offer some encouraging evidence for regulators to evaluate the effectiveness of rules and regulations on customer management. The results here can also serve as a positive indicator for other countries where ECRM is still in its infancy. Findings also indicate that establishment of regulations or guidelines on Customer relationship management are very crucial for its eventual success. Alternatively, given the positive results of mimetic force in our study, there is the practical implication that the regulatory authority can work with leading institutions in initiating implementation of ECRM. This will be particularly effective where the marketplace is hypercompetitive and there is high uncertainty.

The Institutional Influence coupled with institutional pressures are seen as key factors in any meaningful eCRM implementation. If the Institution's framework influences the evolution of new technologies, so be it, the new technological advancements in the company will be the order of the day, if not, old legacy systems will abound naturally forcing the institution to loose competitive edge to those who dare implement emerging technologies.

Furthermore, the results demonstrate that whereas external influences are key to good organizational decisions about implementation of ECRM, implementation will be moderated by the economic evaluation of the business environment and also by internal organizational capabilities. Therefore, firms can more effectively diffuse information security practices when they give voice to and make sound business cases for the economic value of security.

By proactively evaluating economic conditions, managers can make timely strategic responses to institutional pressure to conform when implementing ECRM. Being more aware of environmental

uncertainty, competitive pressures, and the availability of resources for instance, gives managers insight into how to successfully implementation ECRM. As a result, with timely implementation, firms are more likely to avoid risks and the consequent costs associated with customer churning organization.

The study shows that Peer Influence impacts on the eCRM implementation as peers in an office can decide to stick to their old ways of doing things, may be they are technophobia and as the Supervisory Authority Supervisory instills discipline to ensure that the best technology comes on board, the Peers will be jeering and plotting on how to resist their supervisors advances and very authority. Thus with positive Peer influence and proper Supervisory Authority Influence, eCRM Implementation becomes a seamless organizational implementation that ensures that all concerned parties benefit from Senior Managers, employees and customers who are key to any meaningful profit margins.

5.5 Recommendations

Six critical moderating economic factors were identified in the developed framework: environmental uncertainty, competitive advantages, availability of resources influence implementation process, top management support, IT capability and cultural acceptability. Indeed, these factors have been discussed in previous research on ECRM implementation and effectiveness.

Environmental Uncertainty: Every organization that we interviewed emphasized the importance of this in the implementation process. When decision-makers fail to acknowledge or misinterpret the sources and potential consequences of environmental uncertainties related to ECRM management, the impact can be a serious decline in an organization's performance or damage to its legitimacy in the institutional environment. The study shows that Environmental Uncertainty is significant for eCRM implementation so that the company can clear the uncertainty cloud and be certain of existing environment that favours eCRM implementation.

Competitive advantage: Another important concern consistently emphasized by interviewees was economic benefits. In the rapidly changing business environment, organizations need to create a competitive advantage to differentiate their products and services. Investment in ECRM can generate competitive advantages because of a stronger corporate image and enhanced customer confidence and not only retaining the elated customer, but extending the services the customer

signs. A per the study results, Competitive advantage is in effect significant in successful eCRM implementation.

Availability of resources: From our questionnaire results, we realized that available resources allow firms to fund an innovation, absorb the cost of unsuccessful implementation, and implement the innovation by exploring new ideas. Therefore, the availability of resources is particularly important when organizations consider to what extent they will fully invest in ECRM, a simple policy document or a full-scale enterprise implementation. The study shows that availability of resources is indeed significant in successful eCRM implementation.

Top Management Support: All interviewees pointed out that top management support is a critical element of any successful innovative implementation. Studies in ECRM also show that top management support has a positive impact on increasing ECRM effectiveness. This factor focuses on the willingness of the top management to provide sufficient and necessary recourses needed to implement eCRM.

IT Capability: As most interviewees mentioned that an organization manages its innovations through an IT infrastructure, that is to say a framework that connects different members of the organization with internal and external knowledge and processes. The usefulness and roles of IT in the implementation process have been widely discussed in the literature. This factor focuses on the availability and management of technological resources including data warehouse management, eCRM capabilities, internet facilities and software selection and configuration. IT capability defines how fast eCRM implementation can be achieved, if not more IT Capable, eCRM implementation takes more time, if IT Capability is more embraced, then eCRM implementation takes shorter as the required structures to support the new automated services are already in place. For future eCRM phases, it's recommended that Telecommunications companies lay down infrastructures that support technology implementations to make them ICT ready and minimize time taken to train users who were not IT compliant.

Cultural (Organization culture) acceptability: This factor was strongly and consistently recommended by all interviewees. Since diffusing administrative innovation in an organization is as much a social activity as it is a managerial and/or technical activity, cultural change is a prerequisite for successful eCRM implementation. The Organization should have ability to transform into being customer-centric and to consider eCRM as an organization philosophy that is shared organization-wide.

A company that has online operations will culturally be ready for eCRM implementations than one that has offline operations and the staff are comfortable being offline. For business process issues to flourish, organizations with existing offline culture of excellent customer care as demonstrated by service consciousness, customer centric organization customer focused strategies need to be endeared

We would recommend the proposed framework for implementation in telecommunications organizations as it has taken care of how a telecommunication institution leverages proper Institutional and Peer and supervisory Influences with Perceived Environmental Uncertainty, Perceived Competitive Gain, Availability of Resources, Top Management Support, IT Capability and Cultural Acceptability as moderating factors on an organizations automation of manual processes in order to leverage computing power that comes with efficiency and effectiveness of repetitive organization operations with that enables the implementation phase of eCRM to run seamlessly.

Our study has shown that for successful eCRM implementation, Proper leadership as a critical success factor for eCRM implementation, thus proper leadership is crucial. eCRM Implementation is all about change, in short it is about business change, and change begins with the employees, who will in turn make their unwilling peers to be change their attitude. Before a telecommunication company decides to automate, let the senior employees help to change the organizational culture from offline to online.

IT capability comes with many challenges of lack of digital networks to transmit the digital signals and also lack of IT trained staff, for successful eCRM, sound IT capability is crucial. Availability of resources is also seen to be an essential stimulant to success of our framework as without resources, nothing can be implemented. Money, trained personnel, equipment and the right interfaces are also essential.

5.6 Recommendations for future work

From the Regression analysis table, adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable, from the findings in the above table the value of adjusted R squared was 0.731 an indication that there was variation of 73.1% on the eCRM implementation due to changes in supervising authority influence, peer influence and institutional influence at 95% confidence interval., 73.1 %. A further 26.1% is unaccounted for, which requires further research and analysis. Further research is

proposed for a framework on how electronic payment can enhance the implementation process of eCRM to enable the company harness the current trend of ecommerce that is taking a centre stage in payment solutions right from Mpesa to adoption of cashless mode of online payment methods like VISA card usage in many business establishments where billions of shillings are transferred across telecommunications networks daily. Mobile phone penetration is approaching 50 per cent globally and broadband subscription rates are now topping nearly 500 million (Microsoft EMEA Communications Sector Partner Guide, 2010), there is need to research further on a framework that will help telecommunications companies tap a good percentage of this huge market potential in order to increase their revenue streams. Electronic retailing, commonly referred as e-tailing is shaping the way the society trades, thus looking into the way eCRM can enhance electronic payments will be a big boost to the telecommunication companies with MKesho and SIM-ple banking GSM applications in place, eCRM power can be harnessed more to reach the millions of the un-banked population in developing nations who need access to telecommunications sector services that are increasing by the day.

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APPENDICES

Appendix I: Questionnaire

Instructions: Please tick (√) appropriately

Section A: Demographics

1. Your designation (Optional).....

2. What is your role in the implementation of eCRM in the organization

- Information Technology (IT) staff [ ]
- Hardware Vendor [ ]
- Maintenance Control Centre staff [ ]
- Sales and Marketing staff [ ]
- Operations (Call Center) staff [ ]

3. Length of engagement with the organization

- Less than 2 years [] 2-4 years []
- 5-7 years [] over 7 years []

4. What is the nature of service in the implementation of eCRM at the organization

- Software development [] Supply of Hardware []
- Support [] Technical []
- End-user [] Call Center []
- Administration [] Other (please specify) .....

Section B: Evolving Role of ECRM in Telecommunication Companies

5. In this section, please tick the appropriate item that best reflects the importance of the particular factor in the implementation of eCRM in the organization.

	Very important	Important	Moderate	Unimportant	Very unimportant
Service time					
System errors					
Number of complaints					
Call response time					
Centralized database					
Reporting					

6. Please rate the validity of each of the following statements as regards to the customer churn (retention) at the organization. (*Scale: 1-Very valid: 5-Very invalid*)

	Very valid	Valid	Moderate	Invalid	Very invalid
Customer retention					
Increased repurchase orders					
Increased Customer Base					
Increased positive customer feedback					

7. In your opinion, which are the key factors that affect the implementation of eCRM at Orange Kenya?

a. People [ ]
b. Processes [ ]
c. Technology [ ]

8. Please rate the validity of each of the following statements as regards to the customer sales and lifetime value at the organization. (*Scale: 1-Very valid: 5 -Very invalid*)

	Very valid	Valid	Moderate	Invalid	Very invalid
Customer period with company					
Increased service cessations					
Increased customer sales volumes					
Decreased customer compliments					

9."eCRM at Orange Kenya has had a positive return on investment and has achieved the desired results," do you agree with this statement?

- Very strongly agree [ ]
- Strongly agree [ ]

- Agree [ ]
- Disagree [ ]
- Strongly disagree [ ]

10. Please rate the validity of each of the following statements as regards to reduction of operational costs at the organization. (*Scale: 1-Very valid: 5-Very invalid*)

	Very valid	Valid	Moderate	Invalid	Very invalid
Increased movement of products					
Improved cash flow for department					
Reduced expenditure					
Reduced salaries and overhead costs					

11. How do you rate your current organization's performance with regards to eCRM? (Please tick applicable description)

(a) Profitable and growing [ ]
(b) Profitable but not growing [ ]
(c) Growing but not profitable [ ]
(d) Cost of operation are very high [ ]
(e) Unprofitable and not growing [ ]

12. What support do you think the management should adopt to improve eCRM at the organization? (Tick as appropriate)

- Staff training [ ]
- Financial investment [ ]
- Outsourcing [ ]
- Technological investment [ ]
- Re-structuring [ ]

Section C: Framework for Implementation of E-CRM

(Please indicate the level which you agree/disagree with the following statements based on the following rankings by ticking 1,2,3,4,5 as per ranking:1(Strongly agree), 2(Agree)3 (Neutral), 4(Disagree), 5(Strongly disagree).

13. To what extent do you agree with the following aspect individual factors on the implementation of eCRM?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Executive's attitude towards eCRM has an effect on the implementation of eCRM application					
Executive's subjective norm has an effect on the implementation of eCRM application					
Executive's self-efficacy has an effect on the implementation of eCRM application					
Executive's innovativeness has an effect on the implementation of eCRM application					
Executive's internet experience has an effect on the implementation of eCRM application					

14. To what extent do you agree with the following aspect organizational factors on the implementation of eCRM?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Firm's size in regard to number of employees has an effect on the implementation of eCRM application					
Firm's size in regard to total capital investment has an effect on the implementation of eCRM application					
Financial resource has an effect on the implementation of eCRM application					
Technological expertise has an effect on the implementation of eCRM application					

Business experience has an effect on the implementation of eCRM application					

15. To what extent do you agree with the following aspect technological factors on the implementation of eCRM?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Perceived advantage has an effect on the implementation of eCRM application.					
Perceived easiness has an effect on the implementation of eCRM application					
Compatibility has an effect on the implementation of eCRM application.					
Observability has an effect on the implementation of eCRM application					
Trial ability has an effect on the implementation of eCRM application					
Perceived relationship marketing functionality has an effect on the implementation of eCRM application					

16. To what extent do you agree with the following aspect environmental factors on the implementation of eCRM?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Competitive pressure has an effect on the implementation of eCRM application.					
Customer pressure has an effect on the implementation of eCRM application					
Industry pressure has an effect on the implementation of					

eCRM application					
Governmental encouragement has an effect on the implementation of eCRM application					
External support has an effect on the implementation of eCRM application					

Section D: Framework for Evaluation of ECRM

Perceived Environmental Uncertainty

17. To what extent do you agree with the influence of various aspect of Perceived Environmental Uncertainty on the adoption of ECRM?

	Strongly agree	Agree	Moderate	Disagree	Strongly disagree
We believe that our organization cannot anticipate the business and computer risks resulting from changes in the technological and business environments.					
We believe that it is difficult for our organization to foresee the likelihood and determine the impact of potential security risks that may threaten the survival of the organization					
We believe that our organization cannot identify and interpret the sources and potential consequences of environmental volatility					
We believe that, compared with rival firms, our organization has more difficulty in predicting business and technological obsolescence					

Perceived Gain in Competitive Advantage

18. To what extent do you agree with the influence of various aspect of Perceived Gain in Competitive Advantage on the adoption of ECRM

	Strongly agree	Agree	Moderate	Disagree	Strongly disagree
We believe that the adoption of ECRM management makes our organization more efficient than other firms					
We believe that the adoption of ECRM allows our organization to manage our resources better than other firms.					
We believe that the adoption of ECRM makes our business processes more efficient than other firms.					
We believe that the adoption of ECRM allows our organization to generate more business opportunities than other firms.					

Availability of Resources

19. To what extent do you agree with the influence of various aspect of Availability of Resources on the adoption of ECRM?

	Strongly	Agree	Moderate	Disagree	Strongly
Compared with other firms, our organization has more human resources that could be used for ECRM					
Compared with other firms, our organization has a more flexible infrastructure to efficiently support ECRM adoption					
Compared with other firms, our organization has more efficient and streamlined business processes that could result in successful adoption of ECRM.					

Top Management Support

20. To what extent do you agree with the influence of various aspect of Top Management Support on the adoption of ECRM?

	Strongly agree	Agree	Moderate	Disagree	Strongly disagree
The senior management of our organization demonstrates support for ECRM adoption.					
The senior management of our organization formulates a strategy for the introduction of ECRM adoption.					
The senior management of our organization establishes processes and standards to monitor ECRM adoption.					
The senior management of our organization is involved in the decision-making process of ECRM adoption.					

IT Capability

21. To what extent do you agree with the influence of various aspect of IT Capability on the adoption of adoption of ECRM?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Our organization has strong IT leadership.					
Our organization has strong IT planning capability.					
Our organization has enough experience with IT.					
Our organization has competent IT staff.					
Our organization perceives the importance of strategic use of IT.					
Our organization has established a security policy, objectives, targets, and processes relevant to managing risks and improving ECRM in order to deliver results in accordance with the organization's overall policies and objectives.					

Our organization has implemented and operated information security, policy, controls, and processes.					

Cultural Acceptability

22. To what extent do you agree with the influence of various aspect of Cultural Acceptability on the adoption of ECRM?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Our organization is committed to innovation and change.					
Our organization is willing to take risks.					
Our organization emphasizes growth through acquiring new resources and standards.					
Our organization is dynamic to be first with competitive actions, outcomes and achievements.					
Our organization is willing to change formal rules and policies.					
Our organization has assessed and measured process performance against security policy, objectives and practical experience and reported the results to management for review					

Thank you for your time

APPENDIX II: Variables which constitute the factors that influences the implementation of eCRM by telecommunication sectors in Kenya

Sr. No.	Variables	Components										
		1	2	3	4	5	6	7	8	9	10	
1	Executive's attitude towards Ecrm has an effect on the implementation of Ecrm application	.706	.402	.077	.021	.176	-.074	.222	.057	-.01	.097	
2	Executive's subjective norm has an effect on the implementation of Ecrm	.862	-.079	.058	-.019	-.021	.161	.220	-.017	.126	.216	
3	Executive's Self-efficacy has an effect on the implementation of Ecrm Application	.883	.482	-.01	.377	.036	.244	.062	-.172	.469	.434	
4	Executive's innovative has an implementation of Ecrm Application	.802	.482	.107	.600	.068	.018	.027	-.180	.027	.151	
5	Executive's internet experience has an effect on the implementation of Ecrm application	.842	.121	.074	.099	-.102	.136	.125	-.098	.855	-.164	
6	Firms size in regard to number of employees has an effect on the implementation of Ecrm APPLICATION	-0.197	0.102	0.161	-0.134	0.114	-0.080	-0.067	-0.056	0.186	-0.887	
7	Firm size in regard to total capital investment has an effect on the implementation of Ecrm application	.366	.798	.002	-.115	.055	.109	.092	.049	.125	.037	
8	Financial resources has an effect on the implementation of Ecrm application	.123	.754	.069	.063	.075	.133	.029	-.035	.049	-.087	
9	Technological expertise has an effect on the implementation of Ecrm Application	.389	.669	.107	.017	.851	.020	.055	.109	.053	-.179	
10	Business experience has an effect on the implementation of Ecrm Application	.531	-.667	.019	-.079	-.032	-.238	-.149	.581	.030	.116	
11	Perceived advantage has an effect on the implementation of Ecrm application	.196	.045	-806	.190	.659	.130	.391	-.044	-.22	.010	
12	Perceived easeness has an effect on the implementation of Ecrm application	.196	.238	-.811	.406	.038	.357	.129	-.140	-.44	-.384	
13.	Observability has an effect on the implementation of Ecrm application	-.024	.404	.762	.581	-.120	.389	.139	-.014	.303	.210	
14.	Triability has an effect on the implantation of eCRM	.467	.303	.635	.325	.089	.307	.532	.060	.163	.270	
15.	Perceived relationship marketing functionality has an effect on the implementation of Ecrm Application	.198	.332	.626	.248	.446	.018	.635	.240	.121	.041	
16.	Competitive pressure has an effect on the implementation of Ecrm application	.504	.611	-.09	.837	.169	.245	.164	-051	.073	.042	
17.	Customer pressure has an effect on the implementation of Ecrm application	.148	.646	.234	.817	.028	.344	.294	.050	-.01	-.383	
18.	Industry pressure has an effect on the implementation of Ecrm has an effect on the implementation of ECRP APPLICATION	.187	.114	.167	.798	.031	.866	-.033	-.003	.064	.078	

19.	Government encouragement has an effect on the implementation of Ecrm application	-.038	.405	.197	.727	.180	.696	.158	-.181	.091	.030	
20.	External support has an effect on the implementation of Ecrm application	.011	.012	.064	.649	.239	.042	-.021	.187	.152	-.166	
21.	We believe that our organization cannot anticipate the business and computer risks resulting from changes in the technological and business environments	481	.021	-.11	.656	.650	-.356	-.181	-.004	-.03	-.040	
22.	We believe that it is difficult for our organization to foresee the likelihood and determine the impact of potential security risks that may threaten the survival of the organization	.149	-.051	.001	**-.024**	-.624	-.154	-.183	.549	-.10	-.075	
23.	We believe that our organization cannot identify and interpret the sources and potential consequences of environmental volatility	-.246	.094	.156	**.003**	0.603	-.120	-076	-.88	.00	.103	
24.	We believe that the adoption the adoption of ECRM management makes our organization more efficient than our firms	.021	.114	-.19	.040	.094	**.794**	.249	.746	-.27	.055	
25.	We believe that the adoption of ECRM allows our organization to manage our resources better than other firms	-.003	.679	.417	.009	.370.	**.770.**	.165	.085	-.06	-.183	
26.	We believe that the adoption of ECRM makes our business processes more efficient than other firms	.085	-.816	-.12	-.163	0.54	**754**	-.112	.139	.311	-.044	
27.	We believe that the adoption of Ecrm Allows our organization to generate more business opportunities than other firms	.186	.234	.571	.015	.091	**.691**	.582	-.294	-.12	-.072	
28.	Compared with other firms, our organization has more human resources that could be used for ECRM	.115	.100	.865	.158	009	.041	**.741**	-.017	-.03	.020	
29.	Compared with other firms, our organization has a more flexible infrastructure to efficiently support ECRM Adoption	-.134	.144	.906	.207	.082	.068	**.768**	.045	.088	-.011	
30.	Compared with other firms, our organization has more efficient and streamlined business processes that could result in successful adoption of ECRM	.184	-.003	.933	.094	.054	.226	**.726**	.028	.110	-.053	
31.	The Senior management of our organization demonstrates support for ECRM adoption	-234	-.010	.393	.675	.320	.227	.0.09	**.967**	-.02	-.220	
32.	The senior management of our organization formulates a strategy for the introduction of ECRM adoption	.239	.065	.276	.768	.176	.123	.027	**.927**	.020	.099	
33.	The senior management of our organization establishes processes and standards to monitor ECRM adoption	**.557**	.117	.320	.092	.278	.532	.069	**.969**	.000	.252	
34.	The senior management of our organization is involved in the decision making process of ECRM adoption	.312	-.196	.052	-.006	.094	.020	.044	**.845**	.855	-.060	

35.	Our organization has strong IT leadership	.382	.174	.061	.051	.462	.355	.142	.082	0.682	.228	
36.	Our organization has strong IT planning capability	-.099	.186	.163	.074	.563	.199	.073	.036	[illegible]	.624	
37.	Our organization has enough experience with IT	-.056	356	255	.367	.732	.025	-.112	.053	[illegible]	.108	
38.	Our Organization perceives the importance of strategic use of IT	0.12	0.13	0.09	0.18	0.15	0.09	0.08	0.12	[illegible]	0.09	
39.	Our Organization has competent IT staff	.019	-.066	.137	-.101	.305	-.019	-.098	.879	[illegible]	.003	
40.	Our organization has established a security policy, objectives, targets, and processes relevant to managing risks and improving ECRM in order to deliver results in accordance with the organization overall policies and objectives	0.18	0.66	.123	-0101	0.12	0.12	0.98	0.12	0.785	0.025	
41.	Our organization has implemented and operated information security, policy, controls and processes	0.12	0.45	.019	0.23	0.12	0.09	0.12	0.09	0.762	0.062	
42.	Our organization is committed to innovation and change	0.10	0.34	0.12	0.09	0.24	0.12	0.13	0.13	0.08	0.751	
43.	Our Organization emphasizes growth through acquiring new resources and standards	0.09	0.30	0.23	0.03	0.13	0.13	0.11	0.15	0.07	0.672	
44.	Our Organization is dynamic to be first with competitive actions, outcomes and achievement	0.06	0.02	0.09	0.12	0.09	0.09	0.12	0.09	0.04	0.641	
45.	Our Organization is willing to change formal rules and policies	0.14	0.18	0.19	0.19	0.12	0.09	0.09	0.08	0.08	0.602	
46.	Our Organization has assesses and measured processes performance against security, policy, objectives and practical experience and responded the results to management for review	0.12	-0.09	0.02	0.02	0.02	0.12	0.12	0.12	0.19	0.596	

Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization.
a- Rotation converged in 17 interactions: Total Variance Explained

Table A.1 Variables which constitute the factors that influences the implementation of eCRM by telecommunication sectors in Kenya

With this kind of classification, all the items were put in their respective components to come up with the summary in Table 4.19. Column 1 shows the number of factors generated, column 2 shows the items within a particular factor component, column 3 indicates the highest factor loading for each item, and column 4 provides an appropriate reduction interpretation description to each component.

Appendix III: t Test (Next Page)

The columns are probabilities, and the rows degrees of freedoms. Each cell contains the critical t value for that particular degrees of freedom and probability of Type I error (alpha α)

α is the probability of Type I error.

The t values are for the two tail test. The same t value is used for half the alpha value in a one tail test.

For example, at 20 degrees of freedom, the t value of 2.086 is critical for α=0.05(2 tail) and α=0.025(1 tail). With the same degrees of freedom, 1.725 is critical for α=0.1(2 tail) and α=0.05(1 tail).

α(1 tail)	**0.05**	**0.025**	**0.01**	**0.005**	**0.0025**	**0.001**	**0.0005**
α(2 tail)	**0.1**	**0.05**	**0.02**	**0.01**	**0.005**	**0.002**	**0.001**
df							
1	6.3138	12.7065	31.8193	63.6551	127.3447	318.4930	636.0450
2	2.9200	4.3026	6.9646	9.9247	14.0887	22.3276	31.5989
3	2.3534	3.1824	4.5407	5.8408	7.4534	10.2145	12.9242
4	2.1319	2.7764	3.7470	4.6041	5.5976	7.1732	8.6103
5	2.0150	2.5706	3.3650	4.0322	4.7734	5.8934	6.8688
6	1.9432	2.4469	3.1426	3.7074	4.3168	5.2076	5.9589
7	1.8946	2.3646	2.9980	3.4995	4.0294	4.7852	5.4079
8	1.8595	2.3060	2.8965	3.3554	3.8325	4.5008	5.0414
9	1.8331	2.2621	2.8214	3.2498	3.6896	4.2969	4.7809
10	1.8124	2.2282	2.7638	3.1693	3.5814	4.1437	4.5869
11	1.7959	2.2010	2.7181	3.1058	3.4966	4.0247	4.4369
12	1.7823	2.1788	2.6810	3.0545	3.4284	3.9296	4.3178
13	1.7709	2.1604	2.6503	3.0123	3.3725	3.8520	4.2208
14	1.7613	2.1448	2.6245	2.9768	3.3257	3.7874	4.1404
15	1.7530	2.1314	2.6025	2.9467	3.2860	3.7328	4.0728
16	1.7459	2.1199	2.5835	2.9208	3.2520	3.6861	4.0150
17	1.7396	2.1098	2.5669	2.8983	3.2224	3.6458	3.9651
18	1.7341	2.1009	2.5524	2.8784	3.1966	3.6105	3.9216
19	1.7291	2.0930	2.5395	2.8609	3.1737	3.5794	3.8834
20	1.7247	2.0860	2.5280	2.8454	3.1534	3.5518	3.8495
α(1 tail)	**0.05**	**0.025**	**0.01**	**0.005**	**0.0025**	**0.001**	**0.0005**
α(2 tail)	**0.1**	**0.05**	**0.02**	**0.01**	**0.005**	**0.002**	**0.001**
df							
21	1.7207	2.0796	2.5176	2.8314	3.1352	3.5272	3.8193
22	1.7172	2.0739	2.5083	2.8188	3.1188	3.5050	3.7921
23	1.7139	2.0686	2.4998	2.8073	3.1040	3.4850	3.7676

24	1.7109	2.0639	2.4922	2.7970	3.0905	3.4668	3.7454
25	1.7081	2.0596	2.4851	2.7874	3.0782	3.4502	3.7251
26	1.7056	2.0555	2.4786	2.7787	3.0669	3.4350	3.7067
27	1.7033	2.0518	2.4727	2.7707	3.0565	3.4211	3.6896
28	1.7011	2.0484	2.4671	2.7633	3.0469	3.4082	3.6739
29	1.6991	2.0452	2.4620	2.7564	3.0380	3.3962	3.6594
30	1.6973	2.0423	2.4572	2.7500	3.0298	3.3852	3.6459
31	1.6955	2.0395	2.4528	2.7440	3.0221	3.3749	3.6334
32	1.6939	2.0369	2.4487	2.7385	3.0150	3.3653	3.6218
33	1.6924	2.0345	2.4448	2.7333	3.0082	3.3563	3.6109
34	1.6909	2.0322	2.4411	2.7284	3.0019	3.3479	3.6008
35	1.6896	2.0301	2.4377	2.7238	2.9961	3.3400	3.5912
36	1.6883	2.0281	2.4345	2.7195	2.9905	3.3326	3.5822
37	1.6871	2.0262	2.4315	2.7154	2.9853	3.3256	3.5737
38	1.6859	2.0244	2.4286	2.7115	2.9803	3.3190	3.5657
39	1.6849	2.0227	2.4258	2.7079	2.9756	3.3128	3.5581
40	1.6839	2.0211	2.4233	2.7045	2.9712	3.3069	3.5510
α (1 tail)	**0.05**	**0.025**	**0.01**	**0.005**	**0.0025**	**0.001**	**0.0005**
α (2 tail)	**0.1**	**0.05**	**0.02**	**0.01**	**0.005**	**0.002**	**0.001**
df							
41	1.6829	2.0196	2.4208	2.7012	2.9670	3.3013	3.5442
42	1.6820	2.0181	2.4185	2.6981	2.9630	3.2959	3.5378
43	1.6811	2.0167	2.4162	2.6951	2.9591	3.2909	3.5316
44	1.6802	2.0154	2.4142	2.6923	2.9555	3.2861	3.5258
45	1.6794	2.0141	2.4121	2.6896	2.9521	3.2815	3.5202
46	1.6787	2.0129	2.4102	2.6870	2.9488	3.2771	3.5149
47	1.6779	2.0117	2.4083	2.6846	2.9456	3.2729	3.5099
48	1.6772	2.0106	2.4066	2.6822	2.9426	3.2689	3.5051
49	1.6766	2.0096	2.4049	2.6800	2.9397	3.2651	3.5004
50	1.6759	2.0086	2.4033	2.6778	2.9370	3.2614	3.4960
51	1.6753	2.0076	2.4017	2.6757	2.9343	3.2579	3.4917
52	1.6747	2.0066	2.4002	2.6737	2.9318	3.2545	3.4877
53	1.6741	2.0057	2.3988	2.6718	2.9293	3.2513	3.4838
54	1.6736	2.0049	2.3974	2.6700	2.9270	3.2482	3.4800
55	1.6730	2.0041	2.3961	2.6682	2.9247	3.2451	3.4764
56	1.6725	2.0032	2.3948	2.6665	2.9225	3.2423	3.4730
57	1.6720	2.0025	2.3936	2.6649	2.9204	3.2394	3.4696
58	1.6715	2.0017	2.3924	2.6633	2.9184	3.2368	3.4663

59	1.6711	2.0010	2.3912	2.6618	2.9164	3.2342	3.4632
60	1.6706	2.0003	2.3901	2.6603	2.9146	3.2317	3.4602
α(1 tail)	**0.05**	**0.025**	**0.01**	**0.005**	**0.0025**	**0.001**	**0.0005**
α(2 tail)	**0.1**	**0.05**	**0.02**	**0.01**	**0.005**	**0.002**	**0.001**
df							
61	1.6702	1.9996	2.3890	2.6589	2.9127	3.2293	3.4573
62	1.6698	1.9990	2.3880	2.6575	2.9110	3.2269	3.4545
63	1.6694	1.9983	2.3870	2.6561	2.9092	3.2247	3.4518
64	1.6690	1.9977	2.3860	2.6549	2.9076	3.2225	3.4491
65	1.6686	1.9971	2.3851	2.6536	2.9060	3.2204	3.4466
66	1.6683	1.9966	2.3842	2.6524	2.9045	3.2184	3.4441
67	1.6679	1.9960	2.3833	2.6512	2.9030	3.2164	3.4417
68	1.6676	1.9955	2.3824	2.6501	2.9015	3.2144	3.4395
69	1.6673	1.9950	2.3816	2.6490	2.9001	3.2126	3.4372
70	1.6669	1.9944	2.3808	2.6479	2.8987	3.2108	3.4350
71	1.6666	1.9939	2.3800	2.6468	2.8974	3.2090	3.4329
72	1.6663	1.9935	2.3793	2.6459	2.8961	3.2073	3.4308
73	1.6660	1.9930	2.3785	2.6449	2.8948	3.2056	3.4288
74	1.6657	1.9925	2.3778	2.6439	2.8936	3.2040	3.4269
75	1.6654	1.9921	2.3771	2.6430	2.8925	3.2025	3.4250
76	1.6652	1.9917	2.3764	2.6421	2.8913	3.2010	3.4232
77	1.6649	1.9913	2.3758	2.6412	2.8902	3.1995	3.4214
78	1.6646	1.9909	2.3751	2.6404	2.8891	3.1980	3.4197
79	1.6644	1.9904	2.3745	2.6395	2.8880	3.1966	3.4180
80	1.6641	1.9901	2.3739	2.6387	2.8870	3.1953	3.4164
α(1 tail)	**0.05**	**0.025**	**0.01**	**0.005**	**0.0025**	**0.001**	**0.0005**
α(2 tail)	**0.1**	**0.05**	**0.02**	**0.01**	**0.005**	**0.002**	**0.001**
df							
81	1.6639	1.9897	2.3733	2.6379	2.8859	3.1939	3.4147
82	1.6636	1.9893	2.3727	2.6371	2.8850	3.1926	3.4132
83	1.6634	1.9889	2.3721	2.6364	2.8840	3.1913	3.4117
84	1.6632	1.9886	2.3716	2.6356	2.8831	3.1901	3.4101
85	1.6630	1.9883	2.3710	2.6349	2.8821	3.1889	3.4087
86	1.6628	1.9879	2.3705	2.6342	2.8813	3.1877	3.4073
87	1.6626	1.9876	2.3700	2.6335	2.8804	3.1866	3.4059
88	1.6623	1.9873	2.3695	2.6328	2.8795	3.1854	3.4046
89	1.6622	1.9870	2.3690	2.6322	2.8787	3.1844	3.4032
90	1.6620	1.9867	2.3685	2.6316	2.8779	3.1833	3.4020

83	1.6634	1.9889	2.3721	2.6364	2.8840	3.1913	3.4117
84	1.6632	1.9886	2.3716	2.6356	2.8831	3.1901	3.4101
85	1.6630	1.9883	2.3710	2.6349	2.8821	3.1889	3.4087
86	1.6628	1.9879	2.3705	2.6342	2.8813	3.1877	3.4073
87	1.6626	1.9876	2.3700	2.6335	2.8804	3.1866	3.4059
88	1.6623	1.9873	2.3695	2.6328	2.8795	3.1854	3.4046
89	1.6622	1.9870	2.3690	2.6322	2.8787	3.1844	3.4032
90	1.6620	1.9867	2.3685	2.6316	2.8779	3.1833	3.4020
91	1.6618	1.9864	2.3680	2.6309	2.8771	3.1822	3.4006
92	1.6616	1.9861	2.3676	2.6303	2.8763	3.1812	3.3995
93	1.6614	1.9858	2.3671	2.6297	2.8755	3.1802	3.3982
94	1.6612	1.9855	2.3667	2.6292	2.8748	3.1792	3.3970
95	1.6610	1.9852	2.3662	2.6286	2.8741	3.1782	3.3959
96	1.6609	1.9850	2.3658	2.6280	2.8734	3.1773	3.3947
97	1.6607	1.9847	2.3654	2.6275	2.8727	3.1764	3.3936
98	1.6606	1.9845	2.3650	2.6269	2.8720	3.1755	3.3926
99	1.6604	1.9842	2.3646	2.6264	2.8713	3.1746	3.3915
100	1.6602	1.9840	2.3642	2.6259	2.8706	3.1738	3.3905
(1 tail)	**0.05**	**0.025**	**0.01**	**0.005**	**0.0025**	**0.001**	**0.0005**
(2 tail)	**0.1**	**0.05**	**0.02**	**0.01**	**0.005**	**0.002**	**0.001**
df							
101	1.6601	1.9837	2.3638	2.6254	2.8700	3.1729	3.3894
102	1.6599	1.9835	2.3635	2.6249	2.8694	3.1720	3.3885
103	1.6598	1.9833	2.3631	2.6244	2.8687	3.1712	3.3875
104	1.6596	1.9830	2.3627	2.6240	2.8682	3.1704	3.3866
105	1.6595	1.9828	2.3624	2.6235	2.8675	3.1697	3.3856
106	1.6593	1.9826	2.3620	2.6230	2.8670	3.1689	3.3847
107	1.6592	1.9824	2.3617	2.6225	2.8664	3.1681	3.3838
108	1.6591	1.9822	2.3614	2.6221	2.8658	3.1674	3.3829
109	1.6589	1.9820	2.3611	2.6217	2.8653	3.1667	3.3820
110	1.6588	1.9818	2.3607	2.6212	2.8647	3.1660	3.3812
111	1.6587	1.9816	2.3604	2.6208	2.8642	3.1653	3.3803
112	1.6586	1.9814	2.3601	2.6204	2.8637	3.1646	3.3795
113	1.6585	1.9812	2.3598	2.6200	2.8632	3.1640	3.3787
114	1.6583	1.9810	2.3595	2.6196	2.8627	3.1633	3.3779
115	1.6582	1.9808	2.3592	2.6192	2.8622	3.1626	3.3771
116	1.6581	1.9806	2.3589	2.6189	2.8617	3.1620	3.3764
117	1.6580	1.9805	2.3586	2.6185	2.8612	3.1614	3.3756

123	1.6573	1.9794	2.3571	2.6164	2.8585	3.1578	3.3714
124	1.6572	1.9793	2.3568	2.6161	2.8582	3.1573	3.3707
125	1.6571	1.9791	2.3565	2.6158	2.8577	3.1567	3.3700
126	1.6570	1.9790	2.3563	2.6154	2.8573	3.1562	3.3694
127	1.6570	1.9788	2.3561	2.6151	2.8569	3.1556	3.3688
128	1.6568	1.9787	2.3559	2.6148	2.8565	3.1551	3.3682
129	1.6568	1.9785	2.3556	2.6145	2.8561	3.1546	3.3676
130	1.6567	1.9784	2.3554	2.6142	2.8557	3.1541	3.3669
131	1.6566	1.9782	2.3552	2.6139	2.8554	3.1536	3.3663
132	1.6565	1.9781	2.3549	2.6136	2.8550	3.1531	3.3658
133	1.6564	1.9779	2.3547	2.6133	2.8546	3.1526	3.3652
134	1.6563	1.9778	2.3545	2.6130	2.8542	3.1522	3.3646
135	1.6562	1.9777	2.3543	2.6127	2.8539	3.1517	3.3641
136	1.6561	1.9776	2.3541	2.6125	2.8536	3.1512	3.3635
137	1.6561	1.9774	2.3539	2.6122	2.8532	3.1508	3.3630
138	1.6560	1.9773	2.3537	2.6119	2.8529	3.1503	3.3624
139	1.6559	1.9772	2.3535	2.6117	2.8525	3.1499	3.3619
140	1.6558	1.9771	2.3533	2.6114	2.8522	3.1495	3.3614
α(1 tail)	**0.05**	**0.025**	**0.01**	**0.005**	**0.0025**	**0.001**	**0.0005**
α(2 tail)	**0.1**	**0.05**	**0.02**	**0.01**	**0.005**	**0.002**	**0.001**
df							
141	1.6557	1.9769	2.3531	2.6112	2.8519	3.1491	3.3609
142	1.6557	1.9768	2.3529	2.6109	2.8516	3.1486	3.3604
143	1.6556	1.9767	2.3527	2.6106	2.8512	3.1482	3.3599
144	1.6555	1.9766	2.3525	2.6104	2.8510	3.1478	3.3594
145	1.6554	1.9765	2.3523	2.6102	2.8506	3.1474	3.3589
146	1.6554	1.9764	2.3522	2.6099	2.8503	3.1470	3.3584
147	1.6553	1.9762	2.3520	2.6097	2.8500	3.1466	3.3579
148	1.6552	1.9761	2.3518	2.6094	2.8497	3.1462	3.3575
149	1.6551	1.9760	2.3516	2.6092	2.8494	3.1458	3.3570
150	1.6551	1.9759	2.3515	2.6090	2.8491	3.1455	3.3565
151	1.6550	1.9758	2.3513	2.6088	2.8489	3.1451	3.3561
152	1.6549	1.9757	2.3511	2.6085	2.8486	3.1447	3.3557
153	1.6549	1.9756	2.3510	2.6083	2.8483	3.1443	3.3552
154	1.6548	1.9755	2.3508	2.6081	2.8481	3.1440	3.3548
155	1.6547	1.9754	2.3507	2.6079	2.8478	3.1436	3.3544
156	1.6547	1.9753	2.3505	2.6077	2.8475	3.1433	3.3540
157	1.6546	1.9752	2.3503	2.6075	2.8472	3.1430	3.3536

158	1.6546	1.9751	2.3502	2.6073	2.8470	3.1426	3.3531
159	1.6545	1.9750	2.3500	2.6071	2.8467	3.1423	3.3528
160	1.6544	1.9749	2.3499	2.6069	2.8465	3.1419	3.3523
α (1 tail)	**0.05**	**0.025**	**0.01**	**0.005**	**0.0025**	**0.001**	**0.0005**
α (2 tail)	**0.1**	**0.05**	**0.02**	**0.01**	**0.005**	**0.002**	**0.001**
df							
161	1.6544	1.9748	2.3497	2.6067	2.8463	3.1417	3.3520
162	1.6543	1.9747	2.3496	2.6065	2.8460	3.1413	3.3516
163	1.6543	1.9746	2.3495	2.6063	2.8458	3.1410	3.3512
164	1.6542	1.9745	2.3493	2.6062	2.8455	3.1407	3.3508
165	1.6542	1.9744	2.3492	2.6060	2.8452	3.1403	3.3505
166	1.6541	1.9744	2.3490	2.6058	2.8450	3.1400	3.3501
167	1.6540	1.9743	2.3489	2.6056	2.8448	3.1398	3.3497
168	1.6540	1.9742	2.3487	2.6054	2.8446	3.1394	3.3494
169	1.6539	1.9741	2.3486	2.6052	2.8443	3.1392	3.3490
170	1.6539	1.9740	2.3485	2.6051	2.8441	3.1388	3.3487
171	1.6538	1.9739	2.3484	2.6049	2.8439	3.1386	3.3483
172	1.6537	1.9739	2.3482	2.6047	2.8437	3.1383	3.3480
173	1.6537	1.9738	2.3481	2.6046	2.8435	3.1380	3.3477
174	1.6537	1.9737	2.3480	2.6044	2.8433	3.1377	3.3473
175	1.6536	1.9736	2.3478	2.6042	2.8430	3.1375	3.3470
176	1.6536	1.9735	2.3477	2.6041	2.8429	3.1372	3.3466
177	1.6535	1.9735	2.3476	2.6039	2.8427	3.1369	3.3464
178	1.6535	1.9734	2.3475	2.6037	2.8424	3.1366	3.3460
179	1.6534	1.9733	2.3474	2.6036	2.8423	3.1364	3.3457
180	1.6534	1.9732	2.3472	2.6034	2.8420	3.1361	3.3454
α (1 tail)	**0.05**	**0.025**	**0.01**	**0.005**	**0.0025**	**0.001**	**0.0005**
α (2 tail)	**0.1**	**0.05**	**0.02**	**0.01**	**0.005**	**0.002**	**0.001**
df							
181	1.6533	1.9731	2.3471	2.6033	2.8419	3.1358	3.3451
182	1.6533	1.9731	2.3470	2.6031	2.8416	3.1356	3.3448
183	1.6532	1.9730	2.3469	2.6030	2.8415	3.1354	3.3445
184	1.6532	1.9729	2.3468	2.6028	2.8413	3.1351	3.3442
185	1.6531	1.9729	2.3467	2.6027	2.8411	3.1349	3.3439
186	1.6531	1.9728	2.3466	2.6025	2.8409	3.1346	3.3436
187	1.6531	1.9727	2.3465	2.6024	2.8407	3.1344	3.3433
188	1.6530	1.9727	2.3463	2.6022	2.8406	3.1341	3.3430
189	1.6529	1.9726	2.3463	2.6021	2.8403	3.1339	3.3428

182	1.6533	1.9731	2.3470	2.6031	2.8416	3.1356	3.3448
183	1.6532	1.9730	2.3469	2.6030	2.8415	3.1354	3.3445
184	1.6532	1.9729	2.3468	2.6028	2.8413	3.1351	3.3442
185	1.6531	1.9729	2.3467	2.6027	2.8411	3.1349	3.3439
186	1.6531	1.9728	2.3466	2.6025	2.8409	3.1346	3.3436
187	1.6531	1.9727	2.3465	2.6024	2.8407	3.1344	3.3433
188	1.6530	1.9727	2.3463	2.6022	2.8406	3.1341	3.3430
189	1.6529	1.9726	2.3463	2.6021	2.8403	3.1339	3.3428
190	1.6529	1.9725	2.3461	2.6019	2.8402	3.1337	3.3425
191	1.6529	1.9725	2.3460	2.6018	2.8400	3.1334	3.3422
192	1.6528	1.9724	2.3459	2.6017	2.8398	3.1332	3.3419
193	1.6528	1.9723	2.3458	2.6015	2.8397	3.1330	3.3417
194	1.6528	1.9723	2.3457	2.6014	2.8395	3.1328	3.3414
195	1.6527	1.9722	2.3456	2.6013	2.8393	3.1326	3.3411
196	1.6527	1.9721	2.3455	2.6012	2.8392	3.1323	3.3409
197	1.6526	1.9721	2.3454	2.6010	2.8390	3.1321	3.3406
198	1.6526	1.9720	2.3453	2.6009	2.8388	3.1319	3.3403
199	1.6525	1.9720	2.3452	2.6008	2.8387	3.1317	3.3401
200	1.6525	1.9719	2.3451	2.6007	2.8385	3.1315	3.3398
α (1 tail)	**0.05**	**0.025**	**0.01**	**0.005**	**0.0025**	**0.001**	**0.0005**
α (2 tail)	**0.1**	**0.05**	**0.02**	**0.01**	**0.005**	**0.002**	**0.001**

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Table A2: t Test