# Antecedents of Successful Customer Relationship Management (CRM) Systems in Telecommunication Sector in Saudi Arabia

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*Abstract*—This study aims to investigate the relationships between Knowledge Management and Technology towards Successful Customer Relationship Management (CRM ) Systems in Telecommunication Sector in Saudi Arabia. Sample of this study were the employees and managers who employed in Saudi telecommunication, through used SPSS and a structural equation model (SEM). Out of 160 questionnaires, 143 were returned by the end of April, 2016. Each variable was measured using reliable developed scales: Successful CRM Systems (3 items, Knowledge Management (7 items), and Technology (4 items).Data was input into SPSS and analyzed used confirmatory factor analysis (CFA) .Results indicates that there both hypotheses (H1 and H2) of this study were acceptable and supported.

*Index Terms*— Knowledge Management, Technology, Successful CRM Systems, Telecommunication, Saudi Arabia.

## I. INTRODUCTION

Saudi Telecom Company (STC) provides modern services and products in the different fields of the telecommunication industry, including mobile services, landlines, internet, and business solutions. The presented paper selected STC to investigate a successful CRM factors. There are many reasons for selecting STC. First, STC is the largest telecommunication services provider in the Middle East and North Africa. It is the leading operator within the Kingdom of Saudi Arabia, and it is international presence extends to nine countries. In addition, STC has the highest and largest market capitalization among other telecom companies. The subscribed market share for STC in Saudi Arabia is 44.4% [1]. STC was the first telecom communication company in Saudi Arabia that provided mobile and landlines services, and STC is considered one of largest public sector companies in Saudi Arabia. Furthermore, STC is the most popular telecom company in Saudi Arabia [2].

In the modern business era, CRM has become a critical part of marketing due to its ability to increase profits, enhance customer loyalty, and improve customer retention . CRM also plays an important role in the activities of organizations, and while it can be defined in many ways, there is little consistency between those definitions.

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[3] described CRM as a tool that uses specific strategies, such as systems-oriented methods, technology that assists marketing relationships, business practices that aim to increase customer profitability, and business models that focus on customer service or the establishment of win/win relationships between customers and a company's employees. By comparison, [4] believed that CRM could be employed as a viable strategy for businesses that function through tools and software that are designed to help companies effectively manage and facilitate communication channels with their customers.

## II. LITERATURE REVIEW

### A. Successful CRM system

Successful implementation of a CRM system can play an essential role in the strategic position of an organization. The CRM success assists in keeping customers and makes them more loyal. In other words, successful implementation of a CRM system will benefit organizations by increasing customer profitability and attracting additional consumers [5].The first critical goal during the development of a CRM platform is to identify a company's definition of CRM success . [6] observed that a CRM system implementation is considered successful when it assists its company in meeting its business goals. These may involve multiple and varied goals, consisting of marketing goals, such as the loyalty, retention, acquisition, and satisfaction of customers, and financial goals, such as increased profits and reduced costs.

Customer loyalty means that the most profitable customers communicate continuously with the organization. Such loyalty represents their belief that the company's services and/or products are their best options, that the company has the correct services or products at the right time, place, and price [5].Customer satisfaction can be defined as a response or feeling of satisfaction toward the experience of using a company product or service. Various researchers[7], [8] have used customer satisfaction as a measure of CRM system success. The profitability represents the deduction of organizations from the whole revenues and the offer of services or goods for their customers over a specific time period [9]. Successful CRM systems depend strongly on the identification and employment of critical success factors (CSFs). CSFs can be defined as the areas where objects must be correct before a business can grow and flourish [6]. Success factors can also be defined as a set of components that stand

for specific aims, which if obtained, can ensure the satisfactory outcome of a CRM system [10].

### B. Knowledge Management

Generally, knowledge is an essential variable and a source of competitive advantage to an organization. As such, it has an essential role in the success of modern businesses. Knowledge management (KM) is a main research concern within the academic community as well, as it is considered one of the main factors for which companies allocate extra financial resources. Knowledge management permits organizations to access the specialized experiences and knowledge of employees in order to make improvements, generate new capabilities, and enhance functional efficiency [11]. Knowledge management includes the generation of new knowledge produced following explanations, distribution, and use of existing knowledge, as well as the conservation and modification of existing knowledge. Knowledge management is a goal of any organization seeking to generate and enhance its knowledge resources. It mainly requires the related activities of association, identification, and generation of knowledge. The success of any organization thus depends on creating and developing knowledge resources [12].

Knowledge management can be defined as a company's ability to capture, manage, and deliver valid, real-time product and service information with the goals of enhancing customer response and enabling faster decision-making based on reliable, real-time, and accurate information [13]. KM is one of the major interests of contemporary corporate culture worldwide, and many companies have incorporated KM into their plans. According to [14], CRM systems should manage knowledge related to customers with the goals of improving the service and increasing the corporate understanding of their clients. Likewise, [15] referred that CRM system is related to the elements of KM. Therefore, efficient and continuously-updated knowledge about customers is vital to the successful introduction of CRM systems. Customer knowledge is highly valuable to both companies and their CRM systems [16]. Although research is limited on the specific impact of Knowledge management on Successful CRM Systems, exploration of the following hypothesis may produce useful information to resolve this particular issue. Therefore, the researcher has proposed the following:

***H1. Knowledge management significantly and positively Influences successful CRM implementation.***

### C. Technology

Managers know that customers are at the center of business and that the success of their companies depend on them. Since telecommunication companies generally have large customer bases, it can be a challenge for these companies to ensure individual customer satisfaction. Loyal customers expect the best service, and ideally, technology can meet this challenge. However, if a company lacks the appropriate infrastructure, technology can present a major obstacle to the implementation of CRM systems. Several studies [17], [18] have mentioned that when technology is used incorrectly, CRM systems are more likely to fail.

The technology factor represents a collection of corporate resources that permit an organization to save, utilize, collect, and organize data about its customers [19]. Effective technology enables employees who engage with CRM systems to save, gather, and categorize important data for and about their customers. By using Information Technology (IT), which offers an enhanced view of customer performance, organizations can develop enhanced relationships with their customers [19] . Technology can assist CRM systems in a variety of ways. For instance, it can aid in the identification of customer behavior and streamline the collection, processing, and management of customer data[20] . Furthermore, use of appropriate technology can facilitate communication between customers and companies, resulting in the development of new working methods and increased customer satisfaction. As mentioned earlier, technology can also be used to conduct statistical analyses that effectively leverage operational efforts to invest in CRM [21].

Technology within a CRM system should first be employed by creating a customer database that contains an infrastructure of customer information; this process can help to facilitate the overall development of the CRM framework. Numerous technologies can be used during the development of CRM systems, such as data mining, analytical processing, and data warehouse querying and reporting .Data mining plays a vital role during the implementation of CRM platforms because it allows employees to efficiently collect and identify data related to customer relationship [22]. Data warehousing's role is similarly significant because it enables customer data to be merged, managed, correlated, and transformed into forms and formats that allow for the easy analysis and identification of customer behavior. By using technology, a company can combine its customer information into an up-to-date and comprehensive database [18], [23]. Given that technology is regarded as one of the main components of CRM system[24], the role of technology is widely accepted in the literature, and technology issues have been reported as among the causes of CRM failure [20] . Technology is a variable explored in this study. Therefore, the researcher has proposed the following:

***H2. Technology significantly and positively Influences successful CRM implementation***

Thus, the model of this study consist three variables, which are knowledge management and technology CRM as independent variables and successful CRM systems as dependent variable in Telecommunication sector in Saudi Arabia as shown in fig 1.
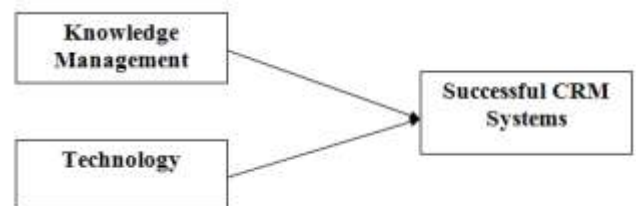


Fig. 1Model of Study

### III. METHODOLOGY

This study chose a systematic random sample in which 160 respondents were identified from 15 places in communication sector in the middle region of Saudi Arabia. The sampling frame for this study consisted of employees and managers, who work in communication sector in Saudi Arabia in the period from April 20, 2016 and until May 20, 2016. Out of 160 questionnaires distributed, 8 were undelivered, and 9 questionnaires were incomplete (missing responses). Thus, a total of 143 responses were usable and used for subsequent analysis, giving a response rate of 89.3 %.

The questionnaire is divided into two parts: (1) demographic variables (1 item); (2) knowledge management (7 items) adapted by[23], [25] ,(3) technology (4items) [8], [23], [25] and (4) Successful CRM systems (4 items) by[8], [23], [26] .

### IV. RESULTS

#### A. Demographic Profile of the Respondents

The survey sample for the this research is the population .The survey distributed to all employees and branch managers in the fifteen STC branches .The sample size is (143) employees and managers . The following table 1 is the characteristics of survey sample study according to of the job title:

TABLE 1
THE DISTRIBUTION OF RESPONDENTS

| Current position | Frequency | Percent |
|---|---|---|
| Employee | 129 | 90.2% |
| Manager | 14 | 9.2% |
| Total | 143 | 100% |

From the above table 1 (143) participants of the sample study, which representing a rate of (90.2%) are employees, who are the largest group in the study sample, while 14 of participants, which representing a rate of (9.8%) are managers who are at least category in the study sample .

#### B. Descriptive Analysis of Variables

Descriptive analysis was conducted in subsequent to the validity and reliability processes to ascertain the main score and standard deviation for the constructs. Based on 143 valid cases being analyzed of mean and standard deviation for all the variables, successful CRM systems is represented by 3 items. Apparently, as shown in Table 2 the mean scores of them are considered very high (5.014). In addition, the results in Table 2 shows that is relatively moderate with mean score (5.075) regarding to technology. Finally, mean score for knowledge management (4.812).

#### C. Reliability Test

The research framework consists of two independent variables (Knowledge Management and Technology) and one dependent variable (Successful CRM Systems) (Table 2). Each construct shows Cronbach alpha readings of acceptable values of above 0.70 [27] .Reliability values for all constructs are range from .79 to .87.This indices that all constructs have internal consistency acceptable. In addition, 14 items remaining after confirmatory factor analysis CFA.

TABLE II
:DESCRIPTIVE STATISTICS OF VARIABLES

| Construct | Original Items | Total Mean | Standard Deviation | Items after CFA | Cronbach Alpha after CFA |
|---|---|---|---|---|---|
| Knowledge Management | 7 | 4.812 | .768 | 7 | .87 |
| Technology | 6 | 5.075 | .773 | 4 | .82 |
| Successful CRM systems | 3 | 5.014 | .813 | 3 | .79 |
| Total | 16 | | | 14 | |

#### D. Confirmatory Factor Analysis (CFA) results

Table 3 show that the confirmatory factor analysis results, researcher observed that the factor loadings of all observed variables or items are adequate ranging from 0.58 to 0.81. In this study, the "cut-off" point chosen for significant loading is 0.50, the minimum level required for a sample size of 120 and above as suggested by [27].

This indicates that all the constructs conform to the construct validity test. As shown in Table 1.3, the remaining numbers of items for each construct are as follows: knowledge management (7 items), technology (4 items), and successful CRM systems (3 items), and the total of remaining items are 14.

TABLE III
FINAL CONFIRMATORY FACTOR ANALYSIS RESULTS OF CONSTRUCT VARIABLES

| Variable Name | Items after CFA | Estimate (Factor Loading) |
|---|---|---|
| Knowledge management | KM7 | .613 |
| Knowledge management | KM6 | .769 |
| Knowledge management | KM5 | .735 |
| Knowledge management | KM4 | .805 |
| Knowledge management | KM3 | .781 |
| Knowledge management | KM2 | .580 |
| Knowledge management | KM1 | .701 |
| Technology | TCH4 | .613 |
| Technology | TCH3 | .797 |
| Technology | TCH2 | .793 |
| Technology | TCH1 | .758 |
| CRM success | SUC3 | .661 |
| CRM success | SUC2 | .812 |
| CRM success | SUC1 | .779 |
| Total Items Remaining | **14** | |

#### E. Hypotheses results

As shown in (table 4) hypothesized model did achieve model fit (p<.001), hence, the explanation of hypotheses result is based on regression result by SPSS version 17.0. Based on the finding, according to table 4 found that there is two

hypothesis significant through t values and acceptable because it is above than +/-1.96 (H1 and H2).

TABLE IV
THE DIRECT IMPACT RESULTS OF HYPOTHESIS

| H. | Regression weights from | To | Estimate | Standard Error (SE) | t | sig |
|---|---|---|---|---|---|---|
| H1 | KM | SUC | .406 | .06 | 9.82 | .000 |
| H2 | TEC | SUC | .52 | .06 | 12.6 | .000 |

## IV. DISCUSSION

As mentioned earlier, the results of this study attempts to examine the goodness of fit of the hypothesized structural model by integrating , knowledge management and technology towards successful CRM systems in Telecommunication Sector in Saudi Arabia. As showed in Table 1.4, the hypothesized model achieve model fit (p-value=0.000, p<0.001). This implies that hypothesized model is supported. From knowledge management was found to have a direct significant impact on successful CRM systems. Past studies have obtained similar result [7], [26] Thus, a positive relationship between knowledge management and successful CRM systems means that the respondents have positive satisfied towards CRM systems in Telecommunication Sector in Saudi Arabia in future.

Second, technology have a direct positive effect on successful CRM systems in Telecommunication Sector in Saudi Arabia, past studies have obtained similar result [7], [24].Thus, a positive and significant impact in the relationship between technology and successful CRM systems in Telecommunication Sector in Saudi Arabia. In addition, the technology CRM, the respondents have given more attention to relationship between technology and successful CRM systems in Telecommunication Sector in Saudi Arabia.

## V. SUGGESTION FOR FUTURE RESARCH

The Sample of this study focused in the middle region of Saudi Arabia. However, future research should investigate the model in a different setting in Saudi Arabia such as northern region. Therefore, more research needs to be done on these areas in order to measure and investigate the international employees' satisfaction and loyalty from different countries. Other determinant factors need to be considered in future research such as organizational factors (i.e. training), top management support , environment factors, and infrastructures factors. More importantly, the Ministry of Saudi Arabia should focus more on the employees and managers' satisfied, availability of modern facilities, development of better transportations avenues that could help employees and managers' to have a faster access to all customers' sites. Subsequently, it will lead to the augmentation of employees and managers' satisfactions towards workplace.

## VI.CONCLUTION

The study examined the antecedents of successful CRM systems in Telecommunication Sector in Saudi Arabia. Two direct paths are found to be significant related to successful CRM systems in Telecommunication Sector in Saudi Arabia

from knowledge management and technology to successful CRM systems in Telecommunication Sector in Saudi Arabia.

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