

Measuring Effectiveness of Customer Relationship Management in Sudanese Telecommunication Companies

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Abstract: *The purpose of this paper is to measure the customer relationship management effectiveness (CRME) in Sudanese Telecommunication Companies and to examine its relationship with key customer response variable. Data were collected using a questionnaire survey distributed to approximately 385 Sudanese telecommunication customers using convince sampling method, a total of 286 usable responses were received representing a response rate of 74% to identify key dimensions of CRME. Study found out the relationship between CRME dimensions, customer satisfaction and customer loyalty. The results of factor analyses discovered five dimensions for CRME, namely, organizational commitment, customer experience, process-driven approach, reliability and technology-orientation. Organizational commitment, process-driven approach and reliability were found to positively affect customer satisfaction. Reliability was found to have direct association with customer loyalty and both customer satisfaction and loyalty-influenced by each other. The identification of the dimension will help managers to implement an effective customer relationship management (CRM) that enhances customer satisfaction and loyalty.*

Keywords: Customer relation management, Telecommunication Company, organizational commitment, customer experience, process-driven approach, reliability, technology-orientation, Customer satisfaction and Customer loyalty

1. Introduction

The most visible achievements in Sudan is the development of Sudanese telecommunication sector, the development in this area is impressive and the government was able to attract large investments from outside the country to provide people services for daily contact with each other through the telecommunications network. It helped distant people to communicate with each other in a quick and easy way. Sudan is a huge and on the rise market, it's in the top five markets African outside of North Africa and in the top ten markets of North Africa, because of its population size and above-average economic growth situation. Therefore the challenge is to encourage the market growth so that its benefits can be experienced as quickly as possible through wide number of people. Currently the market is dominated by four players: Canar, MTN, Sudatel and Zain. The existing players believe that they hold reasonably impregnable market positions (Uk essay, 2015). The winner in the Sudanese telecommunication sector will be the player who can understand the customer, fulfil customer needs, and achieve high levels of customer retention, leveraging technology, knowledge and human resources to provide quality products and services, and manage risks and returns, thereby delivering value to all stakeholders (Kamath et al., 2003, p. 85). For that reason, adopting customer-centric strategies aimed at maintaining and enhancing relationship with existing customers is crucial for the survival of Sudanese telecommunication sector (Roy and Shekhar, 2010). In the past, many Sudanese telecommunication companies have invested heavily in customer relationship management (CRM) technologies to develop and nurture a long-term and mutually benefiting relationship with the customers (Uppal, 2008). By understanding customer needs and delivering greater value, telecommunication companies can develop their competitive advantage and generate more returns. Most of telecommunication companies perceive

CRM systems as "a specific technology solution project" (Payne and Frow, 2005) rather than integrating customer needs with the organization's strategy, people and business process (Sharma and Goyal, 2011). Additionally, research addressing the characteristics of successful CRM strategies and the scale of measurement of such CRM efforts are limited (Boulding et al., 2005). Few studies that have put advanced the measures of CRM effectiveness (CRME) have been from the supplier perspective (Chen et al., 2009). This limits the considerate of how customers recognize CRM and the result of such efforts on their behaviors. Considerate the customer perspective is critical for an organization, since an effective CRM requires the business process and technology focused to the customer. Also, CRM effectiveness varies depending on the relationship marketing strategy and exchange situation (Palmatier et al., 2006). In addition, Soch and Sandhu (2008) argued that since different industries exhibit varying levels of performance, it is imperative to measure CRM in the Sudanese telecommunication companies. The limited scope of application (supplier perspective) and the resulting exchange context significantly reduces utility and generalizability of the existing scales for measuring CRME from a customer perspective in the Sudanese telecommunication companies. There is a lack of agreement on the impact of CRM efforts on key consumer responses (Knox et al., 2003). So, the purposes of this study are: First objective was to develop a multi-item scale for measuring CRME from the customer perspective in the Sudanese telecommunications sector. Second objective was to test the relationship of the CRME with customer satisfaction and customer loyalty.

2. Literature Review

CRM has attracted the attention of both marketing practitioners and researchers over the last decade. Despite,

or maybe due to, the attention drawn to the subject, a clear agreement on what CRM is and especially how CRM should be developed remains lacking. CRM is the values and strategies or relationship marketing with particular emphasis on customer relationships turned into practical application (Peelen et al., 2006). Some scholars define CRM as the application of technology to learning more about each customer and being able to respond to them one-to-one (Peppers et al., 1999). Others don't see it as a technology issue but rather a humane issue: treating each customer with empathy and sensitivity. CRM is an expensive way to learn what otherwise might be learned by chatting with customers for five minutes (Kotler, 2003). CRM is a strategy of how to deal with customer relationship from a company perspective. In the past, numerous of studies have examined CRM implementation in different kinds of industries such as hotels (Lo et al., 2010), retailing (Minami and Dawson, 2008), financial services (Dimitriadis, 2010), tourism (O'zgener and Iraz, 2006), transport services (Cheng et al., 2008), business markets (Gummesson, 2004) and public services (Pan et al., 2006). In spite of this widespread adoption, there remains a lack of agreement about what constitutes CRM and how to evaluate the effectiveness of CRM (Chen et al., 2009)?

2.1 What constitutes CRM?

Few frameworks in the relationship literature were projected for the successful implementation and evaluation of CRM strategies. Park and Kim (2003) used information processing perspective to propose an integrated framework of CRM consisting of four stages namely relationship initiation, relationship value, relationship positioning, and relationship commitment. Thus, through implementation of customer information system, firms can deliver differentiated customer value to improve their relationship commitment towards the customers. Chan (2005) mentioned a similar conceptualization of CRM that integrated business processes, organizational structures, analytical structures and technological representation to present a unified view of a customer. Kim et al. (2003) put forwarded a conceptual model of CRME that consists of four customer-centric perspectives namely, customer knowledge, interaction, value, and satisfaction. The authors projected that CRM involves meeting customers' needs by managing business interactions. By integrating business processes and technology, companies try to maintain and enhance the relationship with their customers. Based on the functional and organizational capabilities, Reinartz et al. (2004) developed a model for CRM process implementation. As a strategic perspective, CRM was conceptualized in terms of three different phases of relationship namely: (1) initiation; (2) maintenance; and (3) termination. The finding of this study suggested that implementation of CRM process in relationship maintenance phase would increase business performance. Payne and Frow (2005) recognizing the importance of business strategy in implementation of CRM process.

2.2 Customer relationship management effectiveness

Measuring the effectiveness of relational efforts is imperative for determining future financial performance;

still, studies for assessing CRME are inadequate. For the purpose of this paper, we defined CRM as: "a set of customer-oriented activities supported by organizational strategy and technology, and is designed to improve customer interaction in order to build customer loyalty and increase profits over time. This definition is consistent with the conceptualization of CRM from the customer perspective. Accordingly, measuring the effectiveness of customer relationship will, "measure the relational efforts or activities that impact customer and business performance variables". Furthermore, operationalizing and measuring customer relationship management and linking it with business performance variables will provide a complete picture of CRME. Despite its practical relevance, only few studies have investigated and measured CRME. Chen et al. (2009) proposed a metric system for measuring CRME from the supplier perspective. They defined CRME through an integrated process-oriented perspective that centres on three elements namely, information technology, relationship management and organizational climate.

2.3 CRM in Sudanese Telecommunication companies

Assessment of the scale established. Also, questions regarding contribution of these elements to customer benefits and business performance are addressed. Reinartz et al. (2004) conceptualized CRM from the customer perspective as: "a systematic process to manage the customer relationship initiation, maintenance, and termination across all customer contact points in order to maximize the value of the relationship portfolio". The context specificity and the varied dimensions proposed in the literature indicate that there exists a scope to develop the measurement of CRME from this alternative perspective. Furthermore, Richards and Jones (2008) urged researchers to carry out additional empirical work related to measurement of CRM to establish its usefulness and predict its influence on behavioral outcomes. Therefore, this study intended to develop a measurement scale from the customer perspective to measure CRME in the Sudanese telecommunication companies. The secondary objective of this study was to investigate the relationship of CRME with the customer response behaviors.

2.4 CRM research in Sudanese telecommunication companies

Lack of studies has examined the effectiveness of CRM in Sudanese telecommunication sectors. The study suggested that the technology was essential for leveraging human relationships to ensure customer interaction and gain competitive advantage. The findings of this study revealed that firm level relationship commitment was influenced by functional benefits while the individual level relationship commitment was affected by psychological and social benefits. Dimitriadis (2010) used relational benefits approach to examine the impact of special treatment benefits, social benefits, and functional benefits on relationship outcomes such as satisfaction, commitment, loyalty, and word-of-mouth. The results of these studies revealed that firms could enhance customer satisfaction through relational strategies that focus on strong relationship commitment. In a recent study, it was found

that CRM implementation improved the ability of the firm to customize the offerings by communicating effectively and providing timely feedback to the customers. As firms learn how to manage CRM effectively over time, they develop a one-to-one relationship with customers, thereby reducing cost efficiency and increasing profit efficiency (Krasnikov et al., 2009). The findings of the above studies provide support to the argument that an effective CRM strategy should include elements of business strategy, organizational motivation and IT to provide relational benefits to customers.

3. Hypotheses Development

3.1 The effect of CRME on customer satisfaction

An extensive body of literature in marketing has studied the effects of CRM on customer satisfaction. CRM efforts enable firms to collect customer information across various interactions and customize the offers to suit individual tastes and preferences. This enhances perception of perceived quality and affects customer satisfaction (Mithas et al., 2005). Using a multi-method approach in a retail context, Srinivasan and Moorman (2005) examined the effects of CRM investments on satisfaction. The results showed that the firms' strategic commitments of CRM system investments and CRM capabilities were positively associated with increased satisfaction. As a result, we hypothesize that:

H1. The evaluation of CRME dimensions is positively related to customer satisfaction.

3.2 The effect of CRME and customer satisfaction on customer loyalty

Customer loyalty is one of the most expected outcomes of successful CRM efforts. It was argued that the CRM efforts lead to a stronger relational bond and intense customer loyalty (Abratt and Russell, 1999). The relationship efforts directed towards an individual customer influence his/her loyalty towards the firm than when directed towards a group (Palmatier et al., 2006). Based on the above discussion, we hypothesize that:

H2. The evaluation of CRME dimensions is positively related to customer loyalty.

Customer satisfaction is one of the main predictors of loyalty. Leverin and Liljander (2006) found that relationship satisfaction did indeed lead to higher loyalty among customers who were treated with the sales-orientation approach. We hypothesize that:

H3. Customer satisfaction is positively related to customer loyalty

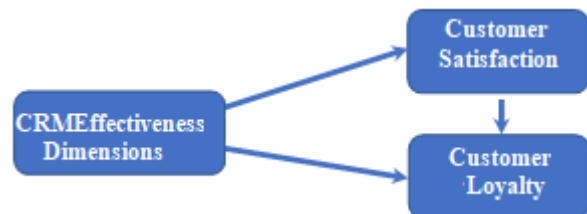


Figure 3.1: A Model reflecting the relationship between the study variables

Source: Modelling Illustration based on reviewed literature

4. Methodology

A questionnaire consisting of the remaining 15 items and 5 variables was directed to 385 were conducted with a convenience bases to Sudanese telecommunications customers. A total of 286 completed responses were obtained, for an overall response rate of 74percent. The survey revealed the following demographic information about the respondents: There were more male (60.8%) than female (39.2 %). The ages of respondents are distributed across the following four bands: less than 30 years (43.4%), 30–40 years (32.9%) and 41-50 years (16.8%) and above 51 years (7.0%). The findings of this survey questionnaire in regards of Marital status found that most customers were Married (48.3%), while (45.1%) Single, (4.5%) Divorced, and (2.1%) are Widowed as opposed to non-Sudanese (24.6%). According to the Income per month is distributed across three bands less than SDG1500 (39.2%), SDG1500-2000 (25.9%) and more than 2000 (35.0%). In respect of the level of education most of the respondents had Bachelor degrees (62.9%); whereas others had Master's degrees (11.5%), Diplomas (18.9%), PhDs (2.8%) and secondary (3.8%). The duration as costumer of ZAIN is distributed across three bands less than 5 Years (31.5%), 5–10 Years (35.7%), and 11 years and more (32.9%). As regards of Occupation, the majority of them were Employee (58.4%), followed by Student (23.8%), Self-employed (15.0%), Retired (1.7%), Professional (3.0%), and (7.0%) are not working. According to the type of service used most of these customers are Pre paid (75.2%), and (24.8%) are post-paid (Table 1).

Table 1: Demographic information for the 286 respondents

Category	Response	N	%
Gender	Female	112	39.2
	Male	174	60.8
Total		286	100
Age group	< 30 years	124	43.4
	30-40 years	94	32.9
	41-50 years	48	16.8
	51 years and above	20	7
Total		286	100
Educational level	Intermediate diploma	54	18.9
	Bachelor	180	62.9
	M. Sc.	33	11.5
	Ph. D.	8	2.8
	Secondary	11	3.8
Total		286	100
Marital status	Single	129	45.1
	Married	138	48.3
	Divorced	13	4.5
	Widowed	6	2.1

Total		286	100
Duration as costumer of ZAIN	< 5 years	90	31.5
	5-10 years	102	35.7
	11 years and more	94	32.9
Total		286	100
Type service used	Pre paid	215	75.2
	Post paid	71	24.8
Total		286	100
Income per month (SDG)	< 1500 SDG	112	39.2
	1500 - 2000 SDG	74	25.9
	> 2000 SDG	100	35
Total		286	100
Occupation	Student	68	23.8
	Employee	167	58.4
	Retired	5	1.7
	Self employed, free business	43	15
	Professional	1	0.3
	Not working	2	0.7
Total		286	100

Source: Researcher's data collected through questionnaire

4.1 Reliability

Reliability testing was performed to ensure that all areas of the constructs domain of interest were covered and that the items truly measured what they were supposed to measure before proceeding to undertake exploratory factor analysis (Sekeran, 2003). Therefore, it was highly pertinent to gauge the extent of reliability of the dependent variables, independent variable and moderator variables for all of items of the questionnaire, before proceeding to undertake exploratory factor analysis (EFA). The results of reliability testing are shown in (Table 2) below. The Cronbach's Alpha " α " value is greater than 0.7 for all factors, Cronbach's Alpha value of 0.7 or higher suggests good reliability and that the indicators of model variables validity are good (Hair et al., 2006).

Table 2: Reliability Measurement

CRME Dimensions Variables	Factor	Cronbach's Alpha (α)
Organizational commitment		0.74
This company regularly uses personal information to provide customized products/ services	0.70	
Employees of this company often interact with customers to assess service performance	0.82	
This company assess customer satisfaction regularly	0.79	
This company carefully evaluates customer evolving needs	0.79	
Customer experience		0.81
This company attends customer complaints promptly	0.77	
This company takes genuine interest in customer problems	0.84	
This company effectively communicates to customers	0.78	
This company is co-operative	0.80	
Process-driven approach		0.78
This company delivers services at the earliest	0.78	
This company designed their service processes to satisfy the customer	0.84	
This company provides value-added information along with its products/services	0.74	

Reliability		0.70
This company maintains consistent service standards	0.72	
This company provides reliable services	0.83	
Technology orientation		0.73
This company uses latest technology to offer quality services	0.84	
This company makes effective use of mobile and internet to enhance customer service	0.70	

Source: Researcher's data collected through questionnaire

4.2 Data Suitability 5.2.3.1 Kaiser-Meyer-Olkin Test

In general, the measure of sampling adequacy indicates whether or not the variables are able to be grouped into a smaller set of underlying factors, which should be greater than 0.5 for a satisfactory factor analysis to proceed. The results of this test (Table 5.5) show that the KMO measured between 0.670 and 0.820. A KMO, value of 0.5–0.6 indicates mediocre partial correlations, 0.6–0.7 indicates moderate partial correlations, 0.7–0.8 indicates good partial correlations, and > 0.08 indicates excellent partial correlations or strong partial correlations are exhibited in the data for this study. This suggests that the data are suitable for EFA (Kaiser, 1974).

4.2.1 Bartlett's Test of Sphericity: Bartlett's Test of Sphericity, the significance value is $p < 0.05$ (Bartlett, 1937). In the case of this study, all the Bartlett's Test of Sphericity values were significant, that is $p < 0.05$, further confirming that these data are suitable for Factor Analysis (Table 3).

4.2.2 The Kaiser-Meyer-Olkin measure KMO: In general, the measure of sampling adequacy indicates whether or not the variables are able to be grouped into a smaller set of underlying factors, which should be greater than 0.5 for a satisfactory factor analysis to proceed. The results of this test show that the KMO measured between 0.68 and 0.82. A KMO, value of 0.5–0.6 indicates mediocre partial correlations, 0.6–0.7 indicates moderate partial correlations, 0.7–0.8 indicates good partial correlations, and > 0.08 indicates excellent partial correlations or strong partial correlations are exhibited in the data for this study. This suggests that the data are suitable for EFA (Kaiser, 1974). Bartlett's Test of Sphericity, the significance value is $p < 0.05$ (Bartlett, 1937). In the case of this study, all the Bartlett's Test of Sphericity values were significant, that is $p < 0.05$, further confirming that these data are suitable for Factor Analysis.

Table 3: KMO and Bartlett's Test

CRME Dimensions	KMO
Organizational commitment	0.74
Customer experience	0.68
Process-driven approach	0.82
Reliability	0.70
Technology orientation	0.69

Source: Researcher's data

4.3 Sample and measures

Data were collected using a questionnaire survey sent to approximately 385 Sudanese telecommunications

customers. A total of 286 usable responses were received representing a response rate of 74%. Each participant responded the extent to which the items described the CRM efforts, satisfaction and loyalty. CRME was measured using the 15-item scale. Customer satisfaction was measured using three-items "I am satisfied" (CS1), "I am satisfied with the quality of services provided" (CS2), and "I am satisfied with the way this company has fulfilled my expectations" (CS3) adopted from Singh (1990). To measure customer loyalty, three items "I say positive things about the company" (CL1), "I encourage friends and relatives to use this company" (CL2) and "I use this company for all my communication needs" (CL3) were adopted from Bettencourt (1997). All the items were measured on a five-point Likert scale anchored by "1" (strongly disagree) to "5" (strongly agree).

4.4 Hypotheses testing

Correlation is significant at the 0.01 level; (a) Diagonal value indicates AVEs. The upper half of the table indicates the squared correlations, while the lower half indicates the correlation coefficients between the constructs see (Table 4).

The item loadings were greater than 0.5 and significant at $p < 0.01$ level. As shown, organizational commitment ($\beta = 0.55$, $p < 0.01$), process-driven approach ($\beta = 0.25$, $p < 0.05$) and reliability ($\beta = 0.28$, $p < 0.05$) dimensions of CRME positively and significantly affected on customer satisfaction. This provides partial support for H1. In case of customer loyalty, only reliability dimension had a positive influence ($\beta = 0.36$, $p < 0.05$), partially supporting H2. However, an indirect effect of CRME dimensions on customer loyalty was observed through customer satisfaction. Customer satisfaction had a positive and significant impact on customer loyalty ($\beta = 0.50$, $p < 0.01$), supporting H3 see (Figure1).

Table 4: Descriptive statistics

Constructs	Mean	Organizational commitment	Customer experience	Process-driven approach	Reliability	Technology orientation	Customer satisfaction	Customer loyalty
Organizational commitment	3.5	0.66	0.59a	0.34	0.27	0.07	0.03	0.31
Customer experience	3.72	0.64	0.58*	0.64	0.29	0.12	0.13	0.24
Process-driven approach	3.88	0.57	0.52*	0.54*	0.61	0.08	0.09	0.25
Reliability	3.87	0.58	0.26*	0.35*	0.29*	0.6	0.23	0.11
Technology orientation	4	0.74	0.17*	0.36*	0.30*	0.48*	0.6	0.04
Customer satisfaction	3.6	0.61	0.56*	0.49*	0.50*	0.35*	0.20*	0.59
Customer loyalty	3.74	0.63	0.25*	0.31*	0.22*	0.33*	0.21*	0.38*

Source: Researcher's data

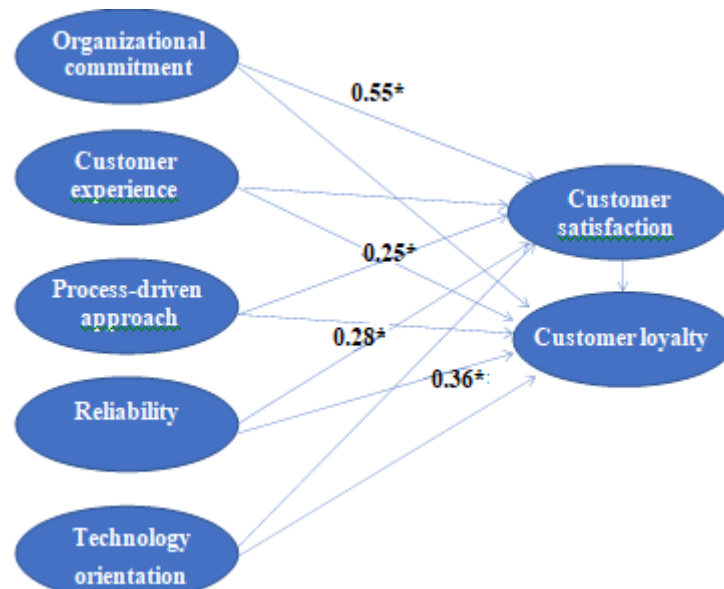


Figure 1: Model testing the relationship between CRME dimensions, customer satisfaction and customer loyalty

Source: Researcher's data

5. Discussion

Moving toward more customer-centric, several of organizations give extra efforts to design and implement CRM as an effective tool of achievement in their business. Although CRM has become an essential business strategy for the organization in the new millennium (Rahman, 2006),

limited research has been conducted to evaluate its effectiveness (Mithas et al., 2005; Chen et al., 2009). Therefore, this study aims to find out an instrument for measuring the effectiveness of CRM in Sudanese telecommunication companies. In addition, to examine the relationship between CRME, customer satisfaction and customer loyalty. The results of this study show that the

CRME scale conceptualized and consists of 15-items covering five dimensions namely, organizational commitment, customer experience, process-driven approach, reliability, and technology orientation. These dimensions reveal how effectively CRM is being practiced in the telecommunication companies in Sudan. The first dimension "organizational commitment" refers to the efforts by a company and its employees to serve customers with the desired levels of performance. It reflects the telecom companies values, attitudes and beliefs in terms of the customer orientation and CRM efforts. The understanding and support for CRM are essential for firms to encourage long-term and mutually benefiting relationships with their customers (Yimet al., 2004). The second dimension "customer experience" describes how well the telecom companies conform to CRM efforts by promptly attending to complaints and efficiently solving problems through practical customer support. This increases the customer comfort levels and ensures their needs and requests are satisfied on a continual basis. The third dimension describes the "process-driven approach" to customer service. This approach enables the companies to fulfil customer requests with speed and intelligence. The "reliability" dimension refers to the extent to which the telecom companies consistently and accurately deliver services to its customers as promised. This dimension is consistent with the findings of Zineldin (2005) that reliability is one of the necessary conditions for telecom companies to deliver superior customer value than competitors and thereby fulfil customer expectations and requirements. The last dimension, "technology orientation", addresses the operational performance of telecom companies with the use of the latest technology. The telecom companies' CRM technology allows collection of customer information across various points of contact and thereby delivers personalized services to maximize customer value. Additional, CRM technologies augment the customer information processes and enables effectiveness of relational efforts. The study also provide CRME scale by evaluating the impact of CRME on customer satisfaction and loyalty. As far as the influence of CRME dimensions on customer satisfaction is concerned, the results revealed that only three dimensions, organizational commitment, process-driven approach and reliability showed a significant impact on satisfaction. This is consistent with prior research on the relationship between CRM dimensions and customer satisfaction (Vries and Brijder, 2000; Jun et al., 2004). It could thus be proposed that organizational commitment is fundamental in implementing CRM as it enables the telecom companies in Sudan to deliver a more personalized customer service. Moreover, only reliability dimension was significant in influencing customer loyalty. This implies that the ability of the telecom companies to deliver high quality customer service as guaranteed can lead to customer loyalty.

6. Managerial implications

The study findings have significant implications for telecom company managers. By providing identified key dimensions of CRME that should be implemented to enhance the business performance. The five dimensions namely, organizational commitment, customer experience, process-

driven approach, reliability and technology orientation measure the effectiveness of CRM efforts in telecom companies. The identification of these dimensions enables the managers to design an effective CRM that fosters enduring relationships with customers. Additional, these dimensions highlight that CRM efforts should focus on key areas such as process, technology, management and people (Sin et al., 2005). Thus, managers should focus on adaptation of all the five dimensions to maximize CRM effectiveness. The finding, that of the five dimensions of CRME, only organizational commitment, process-driven approach and reliability positively influence satisfaction with the telecom company help managers determine priorities, at least in terms of satisfaction drivers. Thus, executing customer transactions correctly and delivering services rapidly as promised are important in enhancing customer satisfaction. This scale can also be used as a tool to identify the aspects of CRM where improvements are needed to increase the levels of customer satisfaction and loyalty. Periodic assessment of the effectiveness of CRM using this scale could help firms managers track changes in CRM dimensions that impact customer satisfaction and loyalty overtime.

7. Limitations and Future Research Directions

This study has some limitations. First, the sample features (i.e. convenience sample) warrant caution before generalizing the results beyond the population studied and require replication of the scale to other industries and nations for generalizability. Second, various other factors can also be studied as outcome indicators of CRME. For example, customer trust and commitment are some of the variables (Kassim and Abdulla, 2006). CRM efforts can be regarded as an on-going process to keep abreast of the changing customer preferences. Future studies should use study's framework to provide further insights on the dimensions studied over time.

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