

Antecedents and Effectiveness of CKM: An Empirical Study

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Abstract: The purpose of this study is to know that how maximum benefits can get by involving customer in innovation and product development process. Firms are applying knowledge management to reduce production costs, radical innovation of new products, attract new customers as well as suppliers. In this study, empirical investigation has done to unearth how firms can enhance customer knowledge management (CKM) and benefits attained by those organizations that are employing CKM practices. Data was collected from 237 employees of five telecom firms who have direct interaction with customers. The SEM (Structural Equation Modeling) was employed to probe the proposition that whether there is any impact of CKM on customer orientation and competitive advantage or otherwise? The results portray that customer knowledge management enhances the customer orientation and competitive advantage as well as customer orientation enhances competitive advantage. Moreover, this study provides insight about the core benefits of CKM.

Key words: Customer knowledge management • Customer relationship management • Market orientation • Customer orientation • Competitive advantage • CRM process

INTRODUCTION

Most of the Pakistani organizations do not use the term knowledge management (KM) in general and 'customer knowledge management' in meticulous, while doing their knowledge-related business. However up to some extent, telecommunication firms are more competitive in employing and working on these concepts. To learn about and from the customers—understanding customers [1] compel the organization to strategically focus on knowledge and learning for gaining competitive advantage. Competitive environment in telecom industry is rapidly intensifying which escort towards war price in industry. Firms are trying to give maximum benefits to customers at minimum prices. All firms are offering attractive benefits to surpass their competitors but sadly there is hardly any firm who is truly representing customers' actual needs. Therefore, at this critical stage where the needs of the customers are not met, it is utmost obligation of firms to cope with this situation. The first initiator firm will get a first mover advantage. There is a need to get maximum feedback from customers and consult them before launching a new policy and products/services. In return, offers and products/services would be more successful and appreciated by customers.

It gives competitive advantage to organizations [2] since these offerings will be based upon the needs of customers. Sometimes customers have identified their latent needs with the help of CKM process.

Firms would be able to differentiate themselves from competitors if they are fully aware of customer's choices. In fact CKM gives information about how to fulfill the needs of valuable customers [3]. Customer base knowledge helps to determine what customer wants and thinks about products/services consequently companies align their processes according to customers' needs [4].

In contemporary epoch, most of the firms are changing their strategies from innovation for customers to innovations with customers in order to engage them in co-creation process [5, 6]. The purpose of this study is to ascertain that how maximum benefits can be obtained by involving customers in innovative and product development processes since product development is knowledge intensive process [7]. Many firms have applied knowledge management to reduce product cost, product innovation, attract new customers and suppliers [8]. CKM not only provides solution to customers but also solves their problems [9].

Nowadays, most of the firms are collecting massive data for, about and from customers but they do not know

how to manage and use this data [10] in order to get competitive advantage. In current scenario most of the firms consider themselves as customer oriented or market driven but only few of them are properly managing their most precious resource, i.e. the knowledge residing in their customers as opposed to knowledge about their customers [11]. "The purpose of CKM is to make customer from passive recipients of product and services, to empower as a knowledge partners" [11].

Conventionally customers are only users of product but in contemporary era, firms are trying to create culture where customers critically think about products or services and give their valuable suggestions for improvement. This study addresses the mainly two research questions; what is the relative impact of antecedents on customer knowledge management? And Does CKM engender market orientation and competitive advantage for firms?

Literature Review: KM comprises of four components i.e. content, competence, composition and collaboration which provides support to customer relationship management (CRM) processes that are campaign, lead, offer, contract, complaint and service management (Appendix 2). Marketing, sales and services are the core functions of any organization [12] since through these functions interaction with customers is possible. The KM components play service provider role to CRM process. This process affects CKM that is generated by combining KM components and CRM process.

Knowledge Management and Customer Relationship Management: From last decades many organizations have developed an understanding of the value of knowledge and try to retain it into more manageable form [9]. Knowledge management is not only considering knowledge of customers but it deals with knowledge related to all firm's stakeholders. In fact KM is keenly concerned the practical knowledge of employees as well as managers rather just focus on knowledge produced academically [13]. Knowledge management includes knowledge of the products/services, competitors, customers, suppliers, methods and processes as well as industry [10].

CRM is managing relationship between firm and customers by focusing on knowledge about and for customers [14] that was originated from relationship marketing [15]. Relationship marketing concept was not considering holistic view of firms. CRM aims leveraging investment in customers' relationship in order to

strengthen competitive position as well as maximizing return to make strapping firms [16, 17]. CRM is not only based on transactional data but it also focuses on amount of knowledge that can be worthwhile for organizations.

Customer Knowledge Management: Customer knowledge is at origin of improvements in customer value [18]. "CKM is about gaining, sharing and expanding the knowledge residing in customers, to both customer and corporate benefits" [9, 11, 19]. In CRM concept most of the managers said that retention is cheaper than acquisition but now a days in this competitive and technological era acquisition is easier than retention since customer preferences has changed on one mouse click [11]. CKM is about interaction between firms and customers in common platform to exchange innovative ideas for process improvement and growth [10, 20]. Organizations should design products or services according to customers' manifest and latent needs [1]. Furthermore, CKM is about creating a valuable leverage and direct interaction with customers [8, 21]. CKM is a holistic view of customer knowledge that is the knowledge for customers, about customers and from customers.

Knowledge for customers is a knowledge which is basic requirement of customers to make decisions about products or services which they get through interaction with organization [20]. Knowledge for customers includes knowledge from other customers, competitors, consulting firms as well as firms themselves which is need of the customers [10]. A product would be successful in market if developed through customers' involvement since it reflects customers' manifest and latent need. The reason behind failure of many new developed products is lack of customer involvement [22].

Knowledge about customers is a knowledge that firm attains to know better about customers i.e. histories, requirements, expectations, buying pattern and other demographics factors [3, 23, 24]. Knowledge may comprise prospective customers and segments as well as individual customers [20, 25].

Knowledge from customers is knowledge in which firms have tried to unearth what actually customers want by getting feedback or making them partner in co-creation process [17]. Firms use ideas, thoughts, creations and suggestions from customers' experiences to make innovative and need-based products [5,6]. The focus of CKM is knowledge from customers that how customers become active partners from being the passive recipients of products/services.

As discussed previously six CRM processes play imperative role to divulge and attain customer knowledge.

Campaign management is a core process of marketing activities which is actually an idea of relationship marketing [14, 26]. Campaign management is an activity that is performed to better know about current and prospective customers by realization, control and monitoring. Campaign management deals with planning, organizing, controlling and monitoring marketing activities for further CRM processes [17].

Lead management is a process by which organizations prioritize and consolidate prospective customers' contacts and other information that were gathered through previous process. This course provides a list of customers to sales staff for further processing [14, 17]. Sales staff offers a product/service to customers by using precise and prioritized list of contacts that leads toward offer management.

Offer management is a core process of every business. Sales are generated through offer management, customer inquiry, qualified lead or any other opportunity. Customers' requirements are fulfilled in this process [14, 17].

Contract management Creating and maintaining contracts for the delivery of products or services. This is essentially a supporting process to offer management or service management. It is mostly used in service sector to maintain long term contracts like in insurance firms [14, 17]. Contract is made when a product or service is at delivery stage.

Complaint management Complaints would be received if customer faces any problem when a product is delivered and contract is made [14, 27]. Firstly, complaints are processed and communicated to respective departments when received from customers [28] to provide customers satisfaction.

Service management is the process of planning, realizing, controlling and providing services that are promised in contract management [14, 17]. Services are intangible outputs that are provided after sales to satisfy customers.

Knowledge for customers is mainly generated by CRM process and campaign management is responsible to gather such type of information. Knowledge about customers is particularly collected through campaign management and service management. Knowledge from customers is collected through service management. In fact customers share their experiences when they use a product and give suggestions for improvement as well as come up with innovative ideas.

Market Orientation: Marketer orientation comprises of three elements customer orientation, competitor orientation and cross functional orientation. One dimension of this construct has been chosen that is customer orientation as this study is only focused on customer related issues. The soul of this concept is to understand customer needs through customer interactions. Through effective CKM, customers' orientation can be increased [29] since market oriented firms are more preemptive about assembling and using market information [30, 31]. By identifying customers' needs through customer knowledge organizations can enhance customer satisfaction, customer loyalty and frequency of buying resulting in high switching cost [29, 32]. Market orientation or customer orientation creates the competitive edge for any organization [33].

Competitive Advantage: The firms will get competitive advantage more easily if continuously involved in the process of creating and managing knowledge [34, 35]. Effective management of customers' knowledge enhances the firm's competitive advantage [1, 36] as well as CKM is a perilous source of CA [2]. For gaining the competitive advantage organization must know regarding market knowledge about customers i.e. firm should be customer oriented [37]. Firms get competitive advantage through two sources one from internal source and other from external source. For internal sources research and development is required since without it, sustainable competitive advantage is not possible [38]. Competitive advantage can be achieved through two ways one is to perform activities in an improved way than competitors and other is different from competitors [39]. IT knowledge management also plays an essential role in enhancing competitive advantage [40]. Firm's resources are not easily converted into firm's competitive advantage however it should match with organization's objectives, goals, and market conditions [41].

Training: Employees' involvement in some programs that are related to community would enhance benefits for firm and community as well. Employees should be properly trained to interact with community to gain maximum benefits out of it within the firm's boundaries [42]. In some circumstances firms have strong systems of customers' feedback but employees are not trained about how to implement this feedback within the limited resources.

Knowledge culture plays a significant role in creation, transfer and use of knowledge within the organization [34]. It creates awareness and educates employees to share knowledge for betterment of the firm as well as to

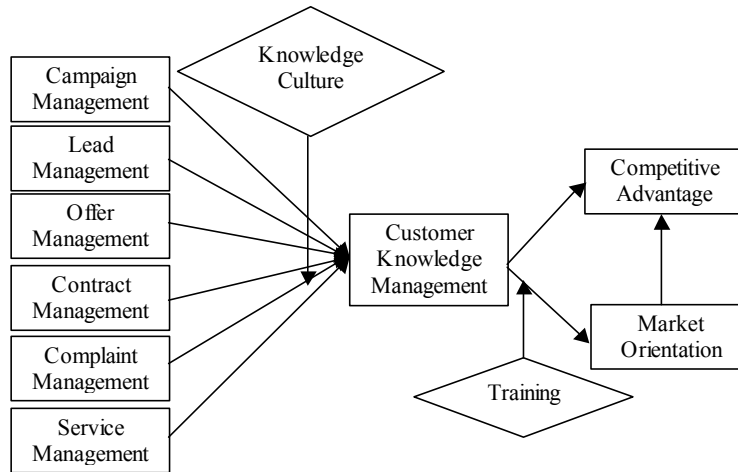


Fig. 1: Research Model3

meet the customer needs. Conventionally working structures of many organizations are machine focused and employees are known as machine men but in this modern era organizations adopt different strategy which is called human oriented working environment in which lot of knowledge, skills and knowledge sharing habits are acquired through people [43]. Knowledge sharing activity is performed when all employees are open minded, honest, hating organization politics and plays constructive role for this imperative task [34, 44]. All customer knowledge management activities fail if there is absence of knowledge culture environment [45]. Successful firms reward those employees who are involved in knowledge sharing activities [46]. In the result of this complaint management cannot play momentous role if firms have got no knowledge culture environment since people are reluctant to share anything with colleagues.

Based on the above discussion framework of this study is presented in Figure 1.

Hypotheses: After extensive theoretical underpinning eleven hypotheses are given underneath.

- H1:** Campaign management significantly enhance customer knowledge management
- H2:** Lead management significantly enhance customer knowledge management
- H3:** Offer management significantly enhance customer knowledge management
- H4:** Contract management significantly enhance customer knowledge management
- H5:** Complaint management significantly enhance customer knowledge management

- H6:** Service management significantly enhance customer knowledge management
- H7:** Customer knowledge management significantly enhance competitive advantage
- H8:** Customer knowledge management significantly enhance market orientation (customer orientation)
- H9:** Market orientation significantly enhance competitive advantage
- H10:** Knowledge culture significantly moderate the impact of complaint management on CKM
- H11:** Training significantly moderate the impact of CKM on market orientation

Research Design

Instrument Development: Instrument was developed through extensive literature review and with the help of academic experts. Eleven variables were presented in above model including two moderating variables i.e. campaign management, lead management, offer management, contract management, complain management, service management, customer knowledge management, competitive advantage, market orientation, knowledge culture and training. Initially, instrument encompasses of seventy items including demographic questions. First part of this questionnaire encloses eleven constructs' items and second part restrains demographic related items.

Firstly, content and face validity was done with the help of domain experts and instrument was modified according to the recommendations made by them. The purpose of content validity is to examine that to what extent items are addressing all dimensions of a particular construct [47]. Instrument was finalized after pilot testing.

At final stage, instrument comprised of 64 items including five demographic questions. Except demographics, all items were measured on five point likert scale (1=Strongly Disagree, 2=Disagree, 3=Neutral, 4= Agree, 5=Strongly Agree). CKM is measured with ten items, campaign management with four, lead management with four, offer management with four, contract management with four, complain management with five, service management with four, competitive advantage with six, market orientation with five, knowledge culture with seven and training is measured with six items.

Data Collection: The questionnaire was distributed among 350 respondents and out of them 254 was obtained; as a result response rate was 73%. For final data analysis 237 questionnaires were used and rests of questionnaires were discarded due to inappropriate responses. Sample size of 242 was calculated through statistical formula in which 95% confidence interval was taken with 50% value of successive event and 4.5% margin of error [48]. Respondents are telecom employees who directly interact with customers including front desk employees, business center managers, back-end employees who handle customer inquiries and sales people who deal with corporate customer. Data was collected from business centers as well as from call centers. Two stage sampling was used for this study. At first stage stratified sampling was employed on the bases of employees' designations (bottom, middle and top level employees) and at second stage convenient sampling was used.

The questionnaires were filled from the employees of five telecom operators. The demographics of these employees are given in Appendix B. Data normality was checked through skewness and value of skewness for all variables is within suggested range that is ± 1 [49].

RESULT

Validity, Reliability and Factor Analysis: Before any study embarks on data analysis, per chance to check either measurement devices used in the study are vigorous, reliable and valid or not [50]. To examine this, different methods were employed like content validity, convergent validity, inter item consistency, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA).

In validity a particular measure would be considered valid if it measures what is supposed to be measure [51]. Generally content validity is measured through domain experts or practitioners [52, 53]. Content validity for this study was examined through two domain experts.

Table 1: *Convergent Validity*

Constructs	Variance Extracted	Construct Reliability
Customer knowledge management	0.82	0.97
Campaign Management	0.82	0.94
Lead Management	0.95	0.98
Offer Management	0.86	0.87
Contract management	0.93	0.94
Complain management	0.88	0.89
Service management	0.87	0.93
Competitive advantage	0.92	0.96
Market orientation	0.83	0.85
Knowledge culture	0.89	0.92
Training	0.86	0.90

Table 2: *Reliability (Internal Consistency)*

Construct	Cronbach Alpha	No. of items
Customer knowledge management	0.875	10
Campaign management	0.688	4
Lead management	0.807	4
Offer management	0.810	4
Contract management	0.843	4
Complain management	0.868	5
Service management	0.856	4
Competitive advantage	0.844	6
Market orientation	0.860	5
Knowledge culture	0.853	7
Training	0.882	6

Two criteria's were suggested to check the convergent validity one is variance extracted (VE) and second is composite or construct validity [54, 55]. The value of VE should be greater than 0.70 and the value of construct validity is greater than 0.50. A table 1 shows the results of VE and constructs validity. All values of VE are greater than 0.70 and the values of construct validity are also greater than 0.70.

To check either all items are internally correlated or otherwise, Cronbach alpha was employed. The suggested value of Cronbach alpha is greater than 0.70 but greater than 0.60 is also acceptable [56, 57]. In Table 2 values of all variables are greater than 0.80 which shows outstanding consistency among items of a particular construct except campaign management which is 0.688.

EFA was carried out to check either all items are or not properly loaded on a specific variable. Sampling adequacy is the assumption of exploratory factor analysis that is checked through KMO and Bartlett test. EFA can be applied if value of KMO is greater than 0.60 and Bartlett test is significant at 5% [58]. Factor analysis was carried out with the extraction of principal component analysis with varimax rotation and factor loads on the basis of eigen value. In Table 3 Eleven constructs with 59 items are presented. In this table the values of KMO are

Table 3 Exploratory factor analysis (Loading scores of all items)

S.No	CKM	CM	LM	OM	CTM	CLM	SM	CA	MO	KC	T
1	0.638	0.80	0.76	0.78	0.72	0.82	0.85	0.75	0.77	0.64	0.81
2	0.765	0.80	0.83	0.80	0.89	0.87	0.90	0.76	0.81	0.67	0.79
3	0.75	0.75	0.83	0.83	0.83	0.75	0.84	0.72	0.81	0.75	0.78
4	0.715	0.52	0.77	0.80	0.85	0.83	0.75	0.78	0.79	0.77	0.84
5	0.74					0.79		0.74	0.82	0.82	0.83
6	0.735							0.75		0.77	0.75
7	0.638									0.69	
8	0.682										
9	0.618										
10	0.534										
KMO	0.855	0.679	0.0786	0.794	0.753	0.857	0.775	0.825	0.837	0.845	0.847
Bartlet	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Variance %	62.33%	52.67%	63.63%	64.33%	68.22%	68.75%	69.89%	56.19%	64.14%	53.49%	63.74%

Table 4: Confirmatory factor analysis (Loading scores)

S. No	CKM	CM	LM	OM	CTM	CLM	SM	CA	MO	KC	T
1	0.644	0.766	0.666	0.677	0.66	0.759	0.85	0.618	0.628	0.506	0.72
2	0.785	0.738	0.761	0.705	0.841	0.848	0.875	0.606	0.796	0.676	0.753
3	0.797	0.571	0.776	0.788	0.732	0.678	0.745	0.742	0.752	0.778	0.843
4	0.774	0.325	0.671	0.723	0.874	0.778	0.673	0.738	0.79	0.854	0.781
5	0.653					0.72		0.719		0.688	0.617
6	0.536									0.54	0.72
7	0.461										
8	0.413										

greater than 0.75 except complain management which is 0.679 and Bartlett test is significant at 5%. All items are loaded on particular construct with one dimension. Loading scores of all items are greater than 0.63 except two items having scores of 0.52 and 0.53. The suggested value of these loading is greater than 0.40 [59, 60, 61]. Variance explained from all these components is greater than 0.50 which is reasonably good.

Confirmatory factor analysis was carried out to check the relationship between the manifest and latent variable

[62, 63]. AMOS 16.0 was used to run CFA. The suggested standardized loading scores of items are significantly greater than 0.40 [64]. In Table 4 loading scores of all items are significantly greater than 0.50 except few items. For the overall fitness of the model/constructs multiple global fit indices are available that shows fitness of the model [55, 65, 66]. In table 4 and 5 results of all items and fit indices are presented in which all values are within acceptable range. Consequently all observed variables are properly measured to all latent variables.

Table 5: Measurement model fit indices

Construct	CMIN (P-value)	CMIN/df	RMR	GFI	NFI	TLI	CFI	RMSEA
CKM	0.00	2.64	0.047	0.96	0.95	0.94	0.97	0.084
CM	0.052	3.78	0.029	0.99	0.98	0.91	0.98	0.100
LM	0.086	2.45	0.022	0.99	0.98	0.97	0.99	0.078
OM	0.166	1.79	0.020	0.99	0.99	0.98	0.98	0.058
CTM	0.802	0.063	0.003	1.00	1.00	1.00	1.00	0.000
CLM	0.012	2.79	0.031	0.98	0.97	0.96	0.98	0.09
SM	0.055	3.69	0.019	0.99	0.99	0.99	0.96	0.10
CA	0.061	2.11	0.026	0.98	0.97	0.97	0.98	0.069
MO	0.54	0.63	0.01	0.99	0.99	1.00	1.00	0.000
KC	0.25	1.27	0.023	0.99	0.98	0.99	0.99	0.03
T	0.083	2.06	0.027	0.99	0.99	0.99	0.98	0.067

Table 6: Correlation Analysis

	CKM	CM	LM	OM	CTM	CLM	SM	CA	MO
CKM									
CM	0.625								
LM	0.624	0.564							
OM	0.673	0.578	0.647						
CTM	0.611	0.532	0.579	0.678					
CLM	0.730	0.596	0.543	0.662	0.675				
SM	0.725	0.560	0.568	0.700	0.627	0.756			
CA	0.679	0.627	0.645	0.691	0.717	0.696	0.716		
MO	0.654	0.654	0.630	0.673	0.663	0.695	0.658	0.715	

Note. All values are significant at 1%.

Table 7: Regression Weights

	Estimate	S.E.	C.R.	P	Hypothesis		
CKM	<---	CM	.337	.090	3.753	0.000	Support
CKM	<---	LM	.197	.075	2.619	0.000	Support
CKM	<---	OM	.003	.151	.018	0.986	Not Support
CKM	<---	CTM	.077	.077	.995	0.320	Not Support
CKM	<---	CLM	.120	.121	.994	0.320	Not Support
CKM	<---	SM	.392	.140	2.798	0.000	Support
CA	<---	CKM	.856	.094	9.127	0.000	Support
MO	<---	CKM	.536	.110	4.894	.0000	Support
MO	<---	CA	.357	.103	3.462	0.000	Support

Table 8: Moderating effect

Independent variables	Coefficients	t Stat	P-value	Hypothesis
Constant	2.39	29.11	0.00	
KC*CLM	.093	18.28	0.00	Supported

Notes. (DV: CKM, R² = 0.59; F(1,235) = 334.24; p = 0.000)

Independent variables	Coefficients	t Stat	P-value	Hypothesis
Constant	2.33	20.97	0.00	
CKM*T	.101	14.41	0.00	Supported

Notes. (DV: MO, R² = 0.47; F(1,235) = 207.77; p = 0.000)

Correlation, Structural Model and Test of Hypothesis:

Correlation was carried out to observe the strength and direction among variables. The relationship first six variables of model with CKM is significantly strong positive (Table 6). CKM significantly correlated with CA and MO as well as MO significantly correlated with CA.

Model of this study was run in two phases i.e. without and with moderating effect. First model was carried out in AMOS 16.0 without moderating effect (Appendix C) and results are presented in table 7. CM significantly enhances CKM that supports first hypothesis ($\beta = 0.337$, p-value < 0.05). LM significantly

increases by CKM ($\beta = 0.197$, p -value < 0.05). This result supports second hypothesis. CKM is not significantly enhanced by OM ($\beta = 0.003$, p -value > 0.05) that rejects third hypothesis. CTM insignificantly increases CKM ($\beta = 0.077$, p -value > 0.05) but with less impact that does not support fourth hypothesis. CLM enhances CKM insignificantly that rejects fifth hypothesis ($\beta = 0.120$, p -value > 0.05). SM positively impacts CKM ($\beta = 0.392$, p -value < 0.05) that supports the sixth hypothesis. CKM significantly enhances CA that supports seventh hypothesis ($\beta = 0.856$, p -value < 0.05). CKM significantly enhances MO ($\beta = 0.536$, p -value < 0.05) that supports eighth hypothesis. MO significantly enhances CA ($\beta = 0.357$, p -value < 0.05) that supports ninth hypothesis of this study.

Plethora of indices were discussed to examine the fitness of the model but most imperative indices that reported in every study are ($\chi^2/df = 2.99$, $RMR = 0.07$, $RMSEA = 0.092$, $GFI = 0.75$, $CFI = 0.70$, $TLI = 0.85$). Generally some indices meet the criteria and some do not. Most essential is $RMSEA$ and $CMIN/df$ that are less than 0.10 and χ^2/df that is close to 3. TLI is within suggested range. Only two indices assume values less than suggested criteria. Model is considered moderately fit and acceptable if some global fit indices are less than suggested criteria [67].

In second phase moderating effect of KC and training was examined (Table 8). Knowledge culture directly affects the impact of CLM on CKM ($\beta = 0.093$, p -value < 0.05) that accepts the tenth hypothesis. Training is also directly affecting the significant impact of CKM on MO ($\beta = 0.101$, p -value < 0.05) that accepts eleventh hypothesis of this study.

DISCUSSION

First hypothesis of this study is supported i.e. Campaign management enhances the CKM. Literature suggested that CM is first interactive activity with customers. Through campaign firms meet with their customers and collect information. Second hypothesis is LM; enhances CKM. In LM firms try to prioritize their customers to understand the actual needs in order to differentiate themselves from their competitors. The empirical investigation shows that relationship between these two variables is positive and significant.

Third hypothesis CKM is enhanced by OM. This concept is empirically investigated and results are found opposed to this hypothesis. Essentially in OM products/services offered to customers and data about

customers is gathered through complaint and lead management. In OM knowledge and preferences about customers are observed but novel information is sporadic from customers' side. Consequently this activity is only related to sales instead of knowledge from customers. CTM enhances CKM is fourth hypothesis of this study and it has least insignificant impact on CKM. This activity is one step ahead from OM in which during or after sale contract is being made between firm and customers. There is trivial novel information obtained related to customers which might be a reason of rejecting this hypothesis.

CKM is significantly enhanced by CLM is fifth hypothesis. Empirical evidences show that CLM is not contributing towards CKM and this hypothesis has been rejected. Indeed complaints are received from existing customers. Primarily in telecom sector during complaint process customers typically are not giving valuable suggestions/information and firms are already aware of their needs. In this entire process there is no activity which supports CKM. Sixth hypothesis is SM positively affects CKM and results show the significant positive impact of SM on CKM. During SM organizations try to solve customers' problems with the intention of customers feel happier and deem themselves as a part of the firm. They give valuable and innovative suggestions to the firm with such feelings of ownership.

The seventh hypothesis is CKM significantly enhances CA. Indeed one objective of this study is to prove that CKM is constructive and it provides competitive advantage to firms. The impact of CKM on CA provides empirical evidences for this study objective. Generally firms try to incorporate customers' needs in their innovative process if they are aware with them. Consequently they will be able to yield those products or services that are precisely demonstrating customer's needs. Eighth hypothesis is CKM enhances MO which is proved through empirical investigation. Customers will work for firms in their innovative processes if firms have complete knowledge about them and give ownership rights in knowledge sharing activities that leads to customer satisfaction, loyalty, retention and acquisition.

CA significantly enhances by MO is ninth hypothesis of this study which is accepted. If customers are happier then it will help in getting competitive advantage. The tenth hypothesis of this study is KC; playing a moderating role between CLM and CKM. This hypothesis is accepted. Theoretical evidences suggested that during complaint management CKM activity becomes worthwhile if employees are encouraged

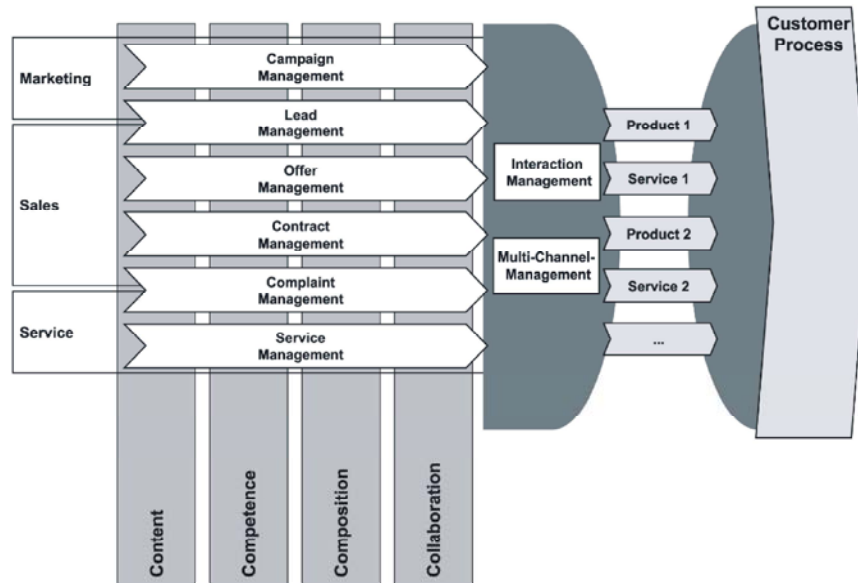
to share their activities. The last hypothesis is that training enhances impact of CKM on MO. Empirical evidences support this hypothesis.

According to findings of this study, out of eleven proposed hypothesis eight hypotheses were accepted whereas three were rejected.

Implication: Effectiveness of CKM provides a competitive advantage to organizations and they become customer oriented. The impact of CKM on competitive advantage is 0.856 that is highly significant as compared to all other variables. CKM generates and improves customer related attributes like customer satisfaction, retention, loyalty, services which leads to rise in sales. The impact

of CKM on market orientation is 0.536. It means CKM is very effective tool for any firm to become customer oriented. These empirical evidences hearten those people who are practicing CKM and provoke those who are still not employing CKM processes. This study contributes enormously to the academic world by empirically testing CKM with six independent variables as well as two consequences and two moderating variables. This research investigation unbolts sample ways for future researchers. Firms should focus on campaign management, lead management and service management to make practices of CKM more operative. There are some other factors that help in getting competitive advantage but CKM and MO is most imperative factors.

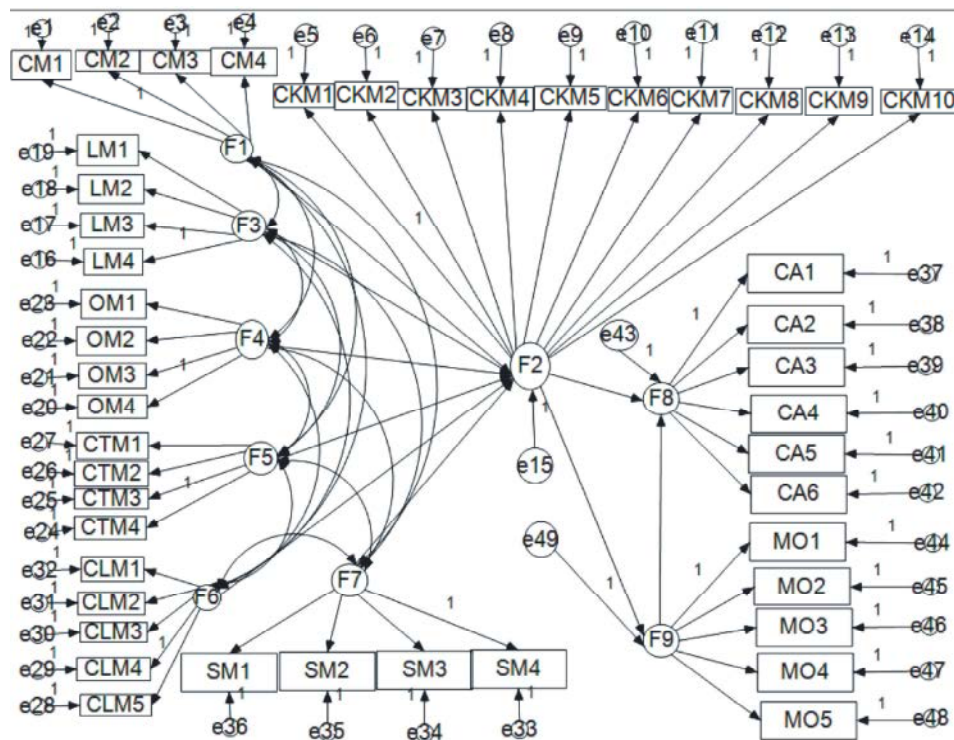
APPENDIX
CRM processes



Appendix B: Demographic analysis of respondents

Category	Percent	Category	Percent
Company Name		Gender	
Mobilink	12.7	Female	43.9
Ufone	31.2	Male	56.1
		Job Title	
Telenor	22.8	CRO	54.0
Warid	16.9	Floor Supervisor	19.0
Zong	16.5	Business Center Manager	17.3
Qualification		Other	9.7
Intermediate	4.6	Job Level	
Bachelor	46.0	Bottom	31.2
Master	47.3	Middle	57.4
Above Master	2.1	Top	11.4

Appendix C: Estimated Structural Model A



CONCLUSION

Previous studies didn't empirically investigate the impact of CRM process and KM on CKM. This study empirically ties the knowledge management, customer relationship management, customer knowledge management and upshots of CKM. In this study out of six CRM processes three (complain management, lead management and service management) are significantly enhancing CKM whereas other three processes (offer management, contract management and complaint management) are not significantly contributing towards CKM.

Limitations and Future Research: Being the first time to empirically examine the complete model of CKM (antecedent and consequences of CKM) research is unique in its nature. Not as much of empirical research is available on CKM. There are abundant opportunities to expand this research further. To scrutinize complete picture of CKM auxiliary antecedents can be added like opportunity, product improvement, product development and knowledge about competitors.

This study discusses only two outcomes of CKM i.e. Customer related and Competitive advantage further some supplementary upshots can be investigated. This research is cross sectional but true sense of CKM will be observed if steered it on longitudinal bases. This process is first applied on a particular organization and after some time market survey can be conducted to examine the effectiveness of CKM practices by calculating the difference between before and after CKM practices. More dimensions can be added to the outcome of MO i.e. competitor orientation and functional orientation to see the holistic view. At large scale comparison should be made between two types of firms those who are practicing CKM and those who do not. This model can be replicated on other firms and industry. Comparison of two lucrative sectors who are employing CKM practices i.e. telecom and banking sector can be inspected through future research.

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