Enhancing Satisfaction of Knowledge User through Quality of KMS: An Empirical Study

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ABSTRACT
In this present era of technology, organizational knowledge is the only source of long term sustainable competitive advantage .This has attracted the interest of organizations towards knowledge management and knowledge management system. Quality of KMS plays a vital role in satisfaction of Knowledge user. It is not only the amount of use of KMS is important but its quality is more important along with its usage. This study aimed at identifying the several key drivers for developing quality of knowledge management system and examining their relationships with satisfaction of knowledge users. This study thus set to investigate the quality of KMS in the context of STMicroelectronics (India).A questionnaire survey was conducted to test the proposed KMS Quality model. The study found that KMS quality drivers such as knowledge quality, system quality and service quality of KMS were significantly related to the Knowledge user satisfaction. The result of this study reveals that quality of KMS and satisfaction of knowledge user are significantly related to each other. The proposed result will be of value to researchers and practitioners interested in designing, implementing, researching, and managing KMS and can serve as a foundation for future studies.

Keywords:
Knowledge, Knowledge Management, Knowledge Management System, Quality, System quality, Service quality, Knowledge quality.

1. INTRODUCTION
In today's emerging knowledge-centric economy where knowledge plays an eminent role, various organizations around the globe have taken various measures to manage knowledge to compete with each other. Success of the organization vastly depends upon the potential of company to create new knowledge quickly disseminate it, and apply it in new products and services [1]. There has been a diverse effort to acquaint KMS so that they may implement and utilize the benefits from KM activities, today the world demands the implementation of knowledge management system at an accelerating pace [2], [3], and [4].

Firms should be equipped appropriately for the successful working of KMS but the only thing they should focus is the quality of system. Just implementing the system will not help the organization but the issue is about the quality of knowledge in achieving knowledge management effectively.KMS truly helps in achieving success as it provides the processes and technologies required for achieving goals and objectives of the organization. To raise the value of knowledge asset, the quality of knowledge required by the knowledge user must be improved preferentially. This is because, as [5] mentioned that the quality of knowledge that enterprises apply to their key business processes is a key element for success in the worlds' competitive environment. To enhance the quality of KMS, the various dimensions of quality should be first defined and then measured. More research is needed to better define these measures and to make them applicable for enterprises.

This research aims to identify the main drivers of quality of KMS and then derives their relationship with the satisfaction of knowledge user .For this research various KMS success and evaluation model has been reviewed and a new conceptual framework has been derived. To support this framework, this research attempts to investigate drivers of quality of KMS in the context STMicroelectronics (India) .The industry is of particular interest because it is ISO 9000 and ISO/TS 16949certified. Its Corporate Portal is known by Best and some of the important feature of this portal are identified like Knowledge Creation and Sharing , General Information and services (people search, Travel and expenses, Stock),Corporate communications and internal news ,Web-based HR applications, Online supplies procurement; Employee directory, elibrary, Marketing Reports etc.

2. LITERATURE REVIEW
Knowledge is of crucial importance, because incorrect or deficient knowledge may lead to unsatisfactory solutions [6].Knowledge is organized information applicable to problem solving [7]; knowledge is information that has been organized and analyzed to make it understandable and applicable to problem solving or decision making [8]; or knowledge is reasoning about information and data to actively enable performance, problem-solving, decision-making, learning, and teaching [9]. These definitions require clear distinctions between data, information, and knowledge. Several authors try to distinguish them [10] [11].Huge amounts of data in various formats are structured and converted to be information. If the information can be used to create benefits for organizations, it then shall be called knowledge. According to [12] Newman (1997), knowledge can also lead tithe creation of technology; this process is named DIKT (Data, Information, Knowledge and Technology). This highlights the relationship among Data, Information, Knowledge, and Technology and points out that value of knowledge depends on how it is applied.

Knowledge management (KM) is an integrated, systematic approach to identify, manage, and share all of the department's information assets, including databases, documents, policies and procedures, as well as previously unarticulated expertise and experience resident in individual officers[13] .[14] defines KMS as 'the practice of selectively applying knowledge from previous experiences of decision-making to current and future decision making activities with the express purpose of improving the organization's effectiveness'. In terms of process, KM consists of six steps which are create, capture, refine, store, manage and disseminate[15] ,and therefore KMS should support these six core activities. The process of creating the KMS consists of four stages which are Infrastructural Evaluation, KM System analysis, Design &Development, System Development and Evaluation [16].

Knowledge Management Systems are defined as systems designed and developed to give decision makers/users in organizations the knowledge they need to make their decisions and perform their tasks[17].According to [18] three main KMS functions are: (1) the coding and sharing of best practices; (2) the creation of corporate knowledge directories; and (3) the creation

of knowledge networks. From the technology-based view, KMS involve six categories: knowledge-based systems (KBS); data mining (DM); information and communication technology (ICT); artificial intelligence (AI)/expert systems (ES); database technology (DT); and modelling [19].

Quality "per se" is a concept of great importance in the organizational field; it's one of the definitions is: the measure of fitness for purpose. Thus, to a product or service which has quality, their characteristics must meet the requirements of their customers. [20] Defines quality as 'meeting or exceeding customer expectations'. Another definition provided by ISO 8402 in which quality has been defined as 'the totality of features and characteristics of a product or service that bears on its ability to satisfy stated or implied needs' [21]. The words 'characteristics' and 'satisfy needs' in the definition imply two important points that are: (1) quality is what satisfies customer's needs; and (2) quality is a set of characteristics that can be measured qualitatively or quantitatively. Hence, defining the dimensions of each 'entity' (the word that is used recently instead of product or service for generalization purpose) according to the needs or expectations of customers is one of the most important steps in quality achievement and improvement.

[22] Describe the structure of KMS pointed out several features that could be interpreted as quality dimensions of the system. They were: transparency, decentralized, open and distributed, integrated, interactive, interoperability, scalability, performance, functionality, consistency, visual clarity, navigation and control, relevancy, feedback, mission focused, usability, standard, intuitive, flexibility, future-proofed, legacy integrative.

In the only literature directly on the quality dimensions of KMS,[23] proposed a series of quality dimensions for the main components of KMS i.e. individual knowledge items, the knowledge sources (or retainers), and ontology.[24] proposed 36 attributes or 'quality characteristics' of KMS . Based on similarities they were grouped into eight dimensions named Functionality, Completeness, Reliability, Usability, Access, Serviceability, Flexibility, and Security.

Measures of KMS Success:

Another branch of relevant literature was on the success factors of KMS. [25] Proposed a model of IS success which has been the basis for further developments. In the latest revision of the model (2003), it comprised of six dimensions: Information Quality, System Quality, Service Quality, and Intention to Use/Use, User Satisfaction, and Net Benefits. [26] adapted the model for the KMS context and proposed six dimensions with 15 sub-dimensions; they were System Quality (Form, Level, Technological Resources), Knowledge/ Information Quality (Linkages, Richness, Knowledge Strategy/Process), Service Quality (Management Support, User KM Service Quality, IS KM Service Quality), Intent to Use/ Perceived Benefit (Capability, Usefulness), Use/User Satisfaction (Utilization, Knowledge Application), and Net Benefits (Change, Performance). Figure 1 shows the resulting KMSSuccess Model.

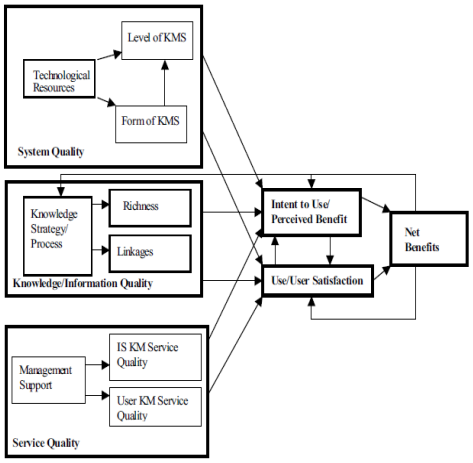

Figure-1 Jennex and Olfman KM Success Model (2004) [26]

Recently,[27] conducted an empirical study examining measures of KMS Success. Their model was also based on the D&M model and it was found helpful in understanding determinants of KMS Success.

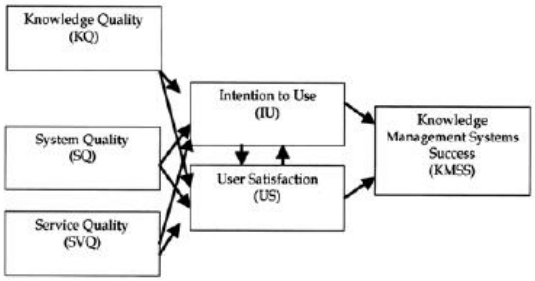

Figure-2 Halawiet al. The KMS Success Model (2008) [27]

3. CONCEPTUAL FRAMEWORK

The conceptual framework of the Quality of KMS was developed from many related studies reviewed above. The framework composes three main constructs which lead to KMS Quality; they are system quality, knowledge quality, and service quality, which further lead to the satisfaction of knowledge user.

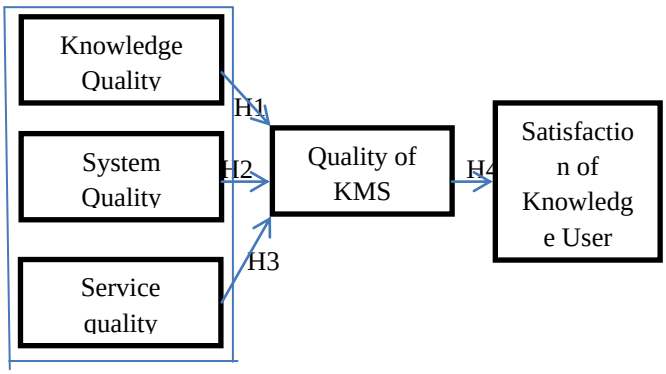

Figure 3: Research Model of Quality of KMS

From the model, four research hypotheses were developed as follows:

Knowledge Quality – Rich knowledge quality is essential to knowledge utilization [28]. Therefore it is hypothesized that good knowledge quality could lead to satisfaction of a knowledge user.

Hypothesis 1: There is a positive relationship between Knowledge Quality and the Quality of a Knowledge Management System.

System Quality – System quality concerns user-friendly interface, easy-to-use, and reliable system [29]. Prior research, found that high system quality could lead to satisfaction of knowledge user. Thus, this research proposes the following hypotheses.

Hypothesis 2: There is a positive relationship between System Quality and the Quality of a Knowledge Management System.

Service quality - Service quality is an important factor in creating good attitude and user satisfaction [30]. The system use can also be influenced by service quality [31]. Thus, this research proposes the following hypotheses.

Hypothesis 3: There is a positive relationship between Service Quality and Quality of a Knowledge Management System.

Quality of KMS-Quality of KMS plays vital role in satisfaction of Knowledge user. An increase in user satisfaction positively affects system use, particularly in terms of effectiveness [32] and more usage [33] [34].Also, satisfaction in systems can be considered an appropriate measure of system success since it leads to more usage or system acceptance in other words [33]. Thus, this research proposes the following hypotheses:

Hypothesis 4: There is a positive relationship between Quality of KMS and Satisfaction of Knowledge User.

4. METHODOLOGY

Research Tool development

Quantitative research method was implemented in a form of survey. Questionnaire was used as a tool in gathering data together with quality research which the suggestion about the KMS will be asked. A Five-point Likert scale ranging from "strongly disagree" to "strongly agree" is used to get the response In order to evaluate the understanding and degree of difficulty of the questions as well as adjusting the questions for the actual data collection, the pre-test of this questionnaire was conducted with 50 respondents who have used the KMS for at least three months. Sample size was set to 175.

5. DATA ANALYSIS AND RESULT

The returned questionnaires were statistically analyzed by a statistical program. First, the research instrument was assessed its reliability and validity. Second, Descriptive statistics are applied to analyze the respondents' demographic data. Finally, the hypotheses were tested by linear regression analysis.

Reliability and Validity Assessment

Measurement validity in terms of reliability and construct validity was assessed. Reliability of the instrument was evaluated using Cronbach's alpha. The calculated alpha was well above 0.8 (see Table I) for all factors, exceeding the common threshold value recommended by Nunnally [35].This indicates an adequate reliability of the constructs.

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
850	879	5

TABLE I: RELIABILITY STATISTICS

Descriptive Statistics

Descriptive statistic analysis using frequency and percentage is described in Table 2. It shows the respondents' demographic profiles and their KMS usages. The majority of the respondents (68%) are male. More than 80% of the respondents have been using KMS for at least or more than a year.

TABLE II: RESPONDENTS PROFILE

Gender	**Percentage**
Male	**68%**
Female	**32%**
Age (Years)	
< 25	
25 – 35	44%
36 – 45	22.9%
46 – 55	20.2%
> 55	2%
Education	
Lower than Bachelor's	
Degree	4%
Bachelor's Degree	60.2%
Higher than Bachelor's	
Degree	35.8%
Experience in use KMS (Years)	
< 1	5.7%
1 – 3	55.4%
4 – 6	28.0%
> 6	10.9
Frequency in use KMS / month	
1-5 times	21.7%
6-10 times	45.7%
> 10 times	32.6%
Average time in use KMS / Times (Minutes)	
< 10	8%
10 – 20	51.8%
21 – 30	36%
> 30	4.2%
Objective to use KMS	
- Respond the organization's policy for employees to Use the KMS	26.2%
- Search for the knowledge to assist in the operation	34.9%
- Search for additional knowledge in general apart from work.	19.4%
- For sharing of Knowledge	14.9%
- Other	4.6%

Regression Analysis

Regression analysis was used to test the four research hypotheses.

Hypothesis 1:There is a positive relation between Knowledge Quality and the Quality of Knowledge Management System. Following table shows the regression result:

TABLE III: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.966	1	1.966	8.496	.004[a]
	Residual	40.034	173	.231		
	Total	42.000	174			

a. Predictors: (Constant), KQ
b. Dependent Variable: KQMS

Hypothesis 1: From Table 3, it can be found thatF= 8.496 which is > 3.89 [F=SSReg/MSRes ,Critical Value of F (1,173)=3.89] Sig= 0.004 which is <0.05 Therefore, we will accept the Alternative Hypothesis (H1) and reject the Null Hypothesis.

Hypothesis 2: There is a positive relationship between system quality and the Quality of a knowledge management system. Following table shows the regression result:

TABLE IV

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.153	1	1.153	4.885	.028 #
	Residual	40.847	173	.236		
	Total	42.000	174			

a. Predictors: (Constant), SQ
b. b. Dependent Variable: KQMS

Hypothesis 2: From table 4, it can be found that F= 4.885 which is >3.89 [F=SSReg/MSRes, Critical Value of F (1,173) =3.89] Sig= 0.028 which is <0.05 Therefore, we will accept the Alternative Hypothesis (H2) and reject the Null Hypothesis.

Hypothesis 3: There is a positive relationship between Service Quality and the Quality of a Knowledge Management System. Following table shows the regression result.

TABLE V: ANOVAA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.448	1	1.448	6.179	.014 #
	Residual	40.552	173	.234		
	Total	42.000	174			

a. Predictors: (Constant), SERQ
b. b. Dependent Variable: KQMS

Hypothesis 3: from table 5, it can be found that F= 6.179 which is >3.89 [F=SSReg/MSRes ,Critical Value of F (1,173)=3.89] Sig= 0.014 which is < 0.05.

Therefore, we will accept the Alternative Hypothesis (H3) and reject the Null Hypothesis.

Hypothesis 4: There is a positive relationship between Quality of KMS and Satisfaction of Knowledge User. Following table shows the regression result:

TABLE VI: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.167	1	1.167	9.961	.002 #
	Residual	20.262	173	117		
	Total	21.429	174			

a. Predictors: (Constant), KQMS
b. b. Dependent Variable: KUS

Hypothesis 4 : from table 6 , it can be found that F= 9.961 which is > 3.89 [F=SSReg/MSRes, Critical Value of F (1,173) =3.89] Sig= 0.002 which is < 0.05.

Therefore, we will accept the Alternative Hypothesis (H1) and reject the Null Hypothesis.

6. CONCLUSION

The hypothesis testing discloses that Quality of KMS have positive and effective relationship with System quality, Service Quality and Knowledge Quality. Knowledge User Satisfaction depends on Quality of KMS. It directly reflects that, if the employees are satisfied with the knowledge, system and service of KMS, they will be willing to use the system. User Satisfaction is the essential factor on which a KM manager should pay attention. Further satisfaction can be achieved by paying attention to the user's requirement and making KMS best to suit their needs. So after seeing all these points last year in 2011, company has changed their Corporate Portal from STway to BeST and included much more added feature in to it.

Although the research successfully highlights the usage of KMS but it also has some limitation. The limitation affecting the research is small sample size which causes limitation on generalisability. More ever, from the survey, one of the important measures of knowledge quality is the degree of relevance of knowledge, which eventually varies depending on organizational and operational characteristics. Hence, the findings of the research may not be applicable in other industries whose functioning may vary.

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