KMS quality- Impact on Competitive Advantage

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Abstract

This article demonstrates the way in which Knowledge Management System (KMS) quality influences effective competitive advantage through decision making and through organizational learning. The results indicate strong support for the research model consisting of the independent variable (KMS Quality) and the dependent variables (decision making, organization learning capability and competitive advantage). The model explains respectively 45% of the decision making, 41% of the organization learning capability and 78% of the competitive advantage variance. It concludes that KMS quality plays an important role in sustaining competitive advantage. In light of these findings, implications for theory and practice are discussed.

1. Introduction

Firms in their efforts to create and sustain competitive advantage in situations of rapid and unpredictable change, have to effectively manage their most important strategic asset: Knowledge. In this emerging perspective, often referred to as the knowledge-based view of the firm [25], organizational knowledge such as operational routines, skills or know-how are the most valuable organizational resources. The use of knowledge-based resources is especially critical in dynamic and changing markets [24], [37], where organizational knowledge can be found, used, and shared by decision makers when they need it. There are many IT systems that can support effectively these knowledge flows. The right information system able to support these knowledge flows is the KMS, which can enhance the creation, gathering, organization, and dissemination of knowledge [4].

The most important characteristic of KMS remains the quality of the system, which typically focuses on system performance characteristics and relies on resource utilization [17]. On the one hand, the quality of the KMS influences the ability to enhance knowledge integration and transfer in order to allow decision makers to better exploit existing knowledge. It is possible to say that decision making is a knowledge intensive activity that needs a KMS to provide the knowledge of interest to decision makers in order to optimize the decision making. Therefore, an efficient KMS quality will enhance the achievement of the right balance between exploration and exploitation of knowledge ([39], [24]) through descriptive procedure, and knowledge reasoning [32] necessary for decision makers to create or sustain competitive advantage.

On the other hand, the quality of the KMS influences a number of sequential information processing activities representing organizational learning capability ([16]; [50]). These activities are the basis of the learning organization capability in terms of the acquisition, distribution, interpretation and utilization of market information. An efficient KMS quality will support organizational learning capability by enhancing its ability to create, gather, organize, and disseminate knowledge [4]. Thus, the efficient management of both organizational learning capability and the decision making will provide real time responses to firm problems and consequently lead to outcomes that enhance competitive advantage.

Given the importance to measure KMS, in terms of the magnitude of its impact on decision making, organizational capability and competitive advantage, there is little research addressing this fundamental issue. Thus without a clear understanding of the dynamics of the impact of KMS quality on competitive advantage with which to guide firms, it necessitates researchers to define and explain how such activity can be integrated within the operations of an organization.

This paper addresses three aspects. Firstly, this research addresses the issue of integrating the KMS quality into the decision making process, organization learning and competitive advantage requirements. Secondly, it explains the dynamic relationship between KMS quality, decision making and organizational learning capability, and in doing so add to previous research in respect to the impact of KMS quality on competitive advantage. Thirdly, the current study provides evidence of the organizational impact of KMS through a survey focusing on support knowledge exchanges within an organizational context.

The paper is structured as follow. The theoretical background is first defined and then the conceptual framework is presented with all its variables (KMS quality, decision making, organizational learning and competitive advantage). Then an overview on the

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methods and measures used to test the research model is presented. Finally, a presentation of the results followed by a discussion of the results, in terms of their theoretical, managerial, and implications for further research is presented.

2. Theoretical Background

The field of strategic management has known, in the 90s, a major shift in focus regarding the focus of sustainable advantage, in essence, from an industry perspective (most noticeably Porter's competitive strategy framework, which viewed a firm as a bundle of activities) to the resource-based view (where a firm is viewed as a bundle of unique resources) [55]. The firm resource-based view suggests organizational resources and capabilities are the principle sources of a sustainable competitive advantage ([7]). The consequence of this change in focus has created a new market that is subject to the same dynamically and competitive conditions that afflicts traditional product markets. The ability of challengers to acquire the resources needed to initiate a competitive offensive has made knowledge the most strategically-significant resource of the firm ([24]; [47]). The significance of these new strategic approaches is the emergence of the knowledge based perspective of the firm ([15]; [51]).

In this view, organizational knowledge may constitute the key strategic resource [5]; [40] and represents the point that has been reached by the organization's learning processes where an organization gains new knowledge about its environment, goals, and processes. In this respect 'Organizational learning' can be characterized as when an organization determines that its actions have led to an intended outcome or when the organization identifies and corrects a mismatch between intended and actual outcomes [6]. In both conceptions individuals perform the actions that lead to learning, but it is the organization that develops roles, norms, and patterns of interaction, routines, and values based on its knowledge to guide its members' decision making.

As knowledge is often the basis for the effective use of firm's resources, a new line of IT based systems, which support organizational knowledge management, has emerged called Knowledge Management Systems. The first and early adopters of KMS have been large consulting companies, though such systems are now used in a variety of industrial sectors such as medicine, engineering, product design, and construction ([30], [13]). KMS are a line of Information Technology (IT) based systems that support organizational knowledge management [4]. KMS have been also defined as a line of systems which target professional and managerial activities by focusing on creating, gathering, organizing and disseminating an organization's "knowledge" as opposed to "information" or "data" [8]. The development of KMS demands that knowledge be obtained, produced, shared, regulated and leveraged by a steady conglomeration of individuals, processes, organizations and information technology. It can be classified in three categories based on the articulation of knowledge in tacit vs. explicit dimension:

- Dynamic systems (expert networks, communities of practice, yellow pages),
- Process-oriented systems (Best practices, process descriptions databases, knowledge repositories) and
- Integrative systems (corporate portals, extranets portals, intranets portals) [9].

However, one of the specific characteristic that plays an important role in sustaining competitive advantage is the system quality of the KMS which is related to the system quality defined by [17]. Thus, when the firm implements an efficient KMS quality, it can propose the right knowledge to the right people in order to make better decision, and in doing so enhance the organizational learning capability and finally gain sustainable competitive advantage.

3. KMS quality impact on competitive advantage

In this section, the focus is on the impact of KMS quality on decision making, organizational learning capability and competitive advantage through a survey conceived to support knowledge exchanges within an organizational context. The hypotheses are grouped for expositional purposes into 2 sections. The hypotheses in the first section portray the effects of the KMS quality on both decision making and organizational learning capability, that is, the effects of KMS quality on (i) knowledge exploration (ii) knowledge exploitation and the effects on (a) knowledge creation, (b) knowledge acquisition, (c) knowledge organization and (d) knowledge dissemination. The second category of hypotheses is related to the combined effects of KMS quality in reference to decision making and organizational learning capability regarding an organization's competitive advantage. Figure 1 shows the effects of KMS quality on decision making, organizational learning and on achieving sustainable competitive advantage.

3.1. Knowledge Management Systems quality

The Delone and McLean [17] IS success model which consists of six interrelated dimensions of success: System quality, information quality, system use, user satisfaction, individual impact and organizational impact. For the study, the holistic model of DeLone and McLean [17] was chosen, and it's it System quality variable which has been used to measure the quality of the KMS. KMS quality is defined as the user's object-based belief of the system. In the literature the KMS quality has been measured by variable such as reliability, flexibility, integration, accessibility and timeliness ([1]; [32]).

Figure 1: Knowledge Management System quality impact on competitive advantage

All the previous cited variable to measure the KMS quality were used, here reliability refers to the dependability of KMS operation, flexibility refers to the way the KMS adapts to changing demands of the user, integration refers to the way the KMS allows data to be integrated from various sources, accessibility refers to the ease with which information can be accessed or extracted from the KMS, and timeliness refers to the degree to which the KMS offers timely responses to requests for information or action. It is important to note that each of these variables reflects perceptions of the KMS quality and the way it delivers information and could impact decision making and organizational learning capability.

A KMS has the ability to support knowledge integration and transfer since they allow the actors of a system to better exploit existing knowledge by reallocating it to better known use. So, an efficient KMS quality can improve the ability to access, deploy, and develop the knowledge retained by the business processes of a firm in order to enhance decision making and organizational learning capability.

Hypothesis 1: The KMS quality is positively associated with the decision making process and the organizational learning capability.

3.2. Decision Making Process

During the process of decision-making, decision makers combine different types of knowledge (both tacit knowledge and explicit knowledge) available in various forms within the organization [12]. The decision making process itself results in improved understanding of the problem, and the process, and generates new knowledge. So, the decision making process begins with the recognition and diagnosis of the problem, followed by the development of alternatives through searching for ready-made solutions or designing custom made ones, and ends with the evaluation and selection of an alternative that has to be authorized or approved [10]. In many organizations, the best (most appropriate) decisions are taken when the development, evaluation, and selection of alternatives benefits from the exchange of information among a moderate to large number of experts or partisans. Therefore, the efficient management of knowledge corresponds to the removal of information overload and redundancy by summarizing, categorizing, and projecting important data. In fact, the decrease in the cognitive effort required to process large amounts of information allows decision makers to focus on more central elements and issues in the decision making process [38].

In general, the type of support provided by the information systems is relatively passive because decision makers are expected to scan internal and external data, and find discrepancies and deviations from expectations invoking ad hoc queries and reports that run on operational databases [12]. However, in the case of the KMS, the support of the information system is more active and simplified because it organizes data with analytical capabilities in order to explore information retrieval and problem formulation. An important issue of concern in this field of research must be addressed in evaluating the KMS quality impact on decision making. It corresponds to the extent to which KMS quality provides an optimal combination between exploration and exploitation of knowledge [42]. Here, exploitation involves the efficient utilization of existing knowledge and competencies, whereas exploration implies a need for constant renewal of knowledge and competencies. These two strategies act as complements rather than substitutes since organizations have to deal with two different categories of knowledge to increase their

intellectual capability. In other words, the decision making process would benefit largely from the combination between exploration and exploitation of knowledge that is optimized by KMS quality. Despite such interdependencies, the research on this field has not adequately considered such issues. Therefore, the following hypothesis is investigated:
Hypothesis 1a: The KMS quality is positively associated with the decision making process.

3.3. Organizational learning capability

Organizational learning is the acquisition of knowledge by individuals and groups who are willing to apply it in their jobs by making decisions and influencing others to accomplish important tasks for the organization [44]. Existing literature indicates that organizational learning capability consists of four processes: Knowledge creation, knowledge gathering, knowledge organization and knowledge dissemination [4]. First, knowledge creation refers to the ability of an organization to originate novel and useful ideas and solutions [42]. Knowledge creation is not a systematic process that can be planned and controlled [41], but the process is, rather, continuously evolving and emergent. The knowledge creation in the organization is led through individuals, i.e. an organization creates knowledge through its individuals, who learn and generate new "realities" by breaking down rigid thinking and assumption [5]. Second knowledge acquisition represent the firm's capability to identify and acquire external information and knowledge that is critical to its operations [55]. Many firms choose a simpler route; because knowledge creation is an extremely difficult activity (they acquire knowledge from other sources and adopt it for their use). Third, for knowledge organization, there are numerous theories of how knowledge is represented and organized in the mind including rule-based production models [3], distributed networks (Rumelt et al. 1998), and propositional models [36]. Finally, Knowledge dissemination refers to the extent to which the knowledge that is obtained by an organization is shared between its functional units, or transferred to organizational partners through formal and informal channels [51].

When a KMS support a single event, it may be relatively easy for other organizations to imitate, whereas for thousand of events, the KMS plays a greater role due to the cumulative effects which is much more difficult to imitate. Thus, the KMS can support efficiently the organizational learning capability and could serve as a source of sustainable competitive advantage.

Hypothesis 1b: The KMS quality is positively associated with the organizational learning capability.

3.4. Achieving Competitive advantage

KMS have similarities to software engineering techniques, but with an emphasis on knowledge rather than data processing, in order to optimize the decision making and to support the organizational learning capability (creation, gathering, organization and dissemination of the knowledge) to sustain and create competitive advantage. In these knowledge-intensive organizations, processing knowledge is central to business success ([46]; [18]). Spender [51] contended that a firm's knowledge and its capability to create exclusive knowledge are at the center of the Theory of the Firm. Grant [24] suggested that knowledge is the significant competitive asset that a firm possesses. In fact KMS, may ease the integration of dispersed knowledge [24], speed up the replication of best practices across time and place (Nelson and Winter 1982), avoid double invention, facilitate leveraging across uses and users ([47]; [48]) to achieve economies of scale and scope, contribute to the co-location of knowledge and tasks [35], and reduce costs of searching and transforming available knowledge for local use [29]. Thus, the benefits of using KMS are high because they include the ability of organizations to be flexible and to respond more quickly to changing market conditions, and the ability to be more innovative as well as improve productivity. Some authors provided empirical evidence based on qualitative cases with regards to the performance implications of KMS ([28]; [52]). In particular, the quality of the KMS is expected to contribute to competitive advantage of companies by supporting and enhancing the decision making process and Organizational Learning Capability.

Broad knowledge availability can, similarly, be a source of competitive advantage ([12]; [18]). Achieving competitive advantage requires the adequate understanding of the KMS quality to accurately select and provide the right knowledge to decision makers in order to solve decision-based problems. The different decision makers within a system are able to respond in real time to their problem solving, through access to the right knowledge, through the support of organizational learning by the KMS, which increases profitability by interacting with experts that can provide them with insightful knowledge they need to solve problems. The dynamic process of acquiring, evaluating, integrating, deploying and exploiting knowledge is critical to the efficient management of decision making and organizational learning

capabilities and the realization of competitive advantage [37].

The quality of KMS allows organizations to achieve a variety of benefits from knowledge exchanges to increasing profitability. In the research context, KMS quality is supposed to increase firm efficiency and effectiveness by helping the different actors reduce the time they require for insightful analysis. The KMS quality provides an efficient and effective context to the decision making process and to the organizational learning capability, in order to respond in real time to their problem solving and achieve competitive advantage.

Hypothesis 2: The decision making process is positively associated with competitive advantage

Hypothesis 3: The organizational learning capability is positively associated with competitive advantage

4. Research Method

The study undertaken focused on understanding the various effects of the KMS quality on competitive advantage. To gain this understanding a survey based on the support that KMS gives to knowledge exchanges within a firm was made. The subjects of this study were invited to use the KMS platform that supported their daily task for a real-life exercise. The task given to the subjects was to create, collect, organize and share information on their project and take the right decision for their project in a limited time, this they were invited to do on a daily basis. The platform was used during a month, and was provided with all the documents they needed to pursue their project. It was expected that few of the respondents would have already used this type of platform, while most would be familiar with the general features of the KMS platform.

All the data that we have used for the analysis were collected from a survey that was administered at the end of each the projects. All the hypotheses and variables were assessed in this survey using the constructs that have been found in the literature (Figure1).

4.1. Sampling Method

Each subject was given one set of survey instruments to be used in assessing the various effects of the KMS quality on competitive advantage. The set contained the four constructs (KMS quality, Decision making process, Organizational learning capability and Competitive advantage) under study.

4.1.1. Data Collection Procedure

The data collection activity for this study consisted of three main phases. First, an expert survey was conducted, to identify the KMS and the specific content within which it will be incorporated in the identified platform. Second, a pilot study, involving 12 subjects, was performed. It was used to refine the items and constructs used in the study. It's also enabled the researchers to clarify the wording, content, and general layout of the survey instrument. Finally, a main survey was administered, involving 94 subjects.

In the first phase of the data collection, six experts who have developed and supported internally the KMS platform evaluated the questionnaire. These experts were composed by both engineers and professors of information systems who had practical and academic experience. The experts were asked to rate the KMS platform in terms of KMS quality , Decision making process, Organizational learning capability and Competitive advantage, by responding to a 7 point Likert scale questionnaire. The scores for KMS quality, Decision making process, Organizational learning capability and Competitive advantage were summed. Both the sum of the scores and overall satisfaction level consistently indicate that all six experts found the KMS adequate for the purpose of the survey.

The second phase of the data collection consisted of a pilot study. The objective of this phase was to focus on measurement issues and to refine the research instruments prior to the final data collection. Pilot survey questionnaires were distributed to 12 undergraduates, graduates, MBA, and PhD students in engineering and business majors.

The third phase consisted of 94 students useable questionnaires that were not involved in the pilot study. One hundred and fifteen surveys were given out and 97 were returned and 3 were excluded for incomplete filling of the questionnaire.

4.1.2. Sample Frame

The sample frame for empirical research is an important step in ensuring that the population of interest has been correctly identified. The ideal candidate for this study was computer literate, had previous exposure to web technology and had current access to a web-enabled computer [20]. Concerning the exposure to the technology rate, a full day immersion was organized on the KMS platform in form of a seminar, were the KMS platform we exposed, its functionality, and the project they had to perform on the KMS platform. The assessment instruments were administrated in a classroom setting.

All subjects had access to a computer with web access via school or work and many had their home computer linked to the web through an Internet Service Provider.

4.1.3. Subject Pool

The subjects identified for the pilot test and final data collection was a sample of undergraduate, graduate, MBA and PhD students enrolled in management information systems courses at a research institution in the south of Italy. Subjects voluntarily participated in the survey, and were advised that they could withdraw from participation at any time without adverse consequence. The survey was conducted in an unsupervised environment at the end of the project that they had to perform on the KMS platform.

Although the reliance on college and graduate students has been criticized for many studies in applied research, there is justification for using them under specific conditions [23]. In a meta-analysis comparing studies using undergraduate students and non-students, [23] noted that between-groups differences are less pronounced when no prior knowledge or familiarity with the task is needed to make judgments, or when the objective is to perform simple reasoning tasks. A majority of undergraduates taking courses are exposed to web technology as part of the regular curriculum. Any complexity or skill in performing experimental tasks is reduced by the graphical nature of the technology. Thus, only general knowledge of computers and English were required. The use of undergraduate, graduate, MBA and PhD students made sense in this study because a primary focus of this research is on the impact of KMS quality on decision making, organizational learning and competitive advantage before implementing this platform in real a sample of firms.

4.1.4. Demographics

Ninety four students have participated in the final survey. The demographics represent approximately 58.5% of the subjects were male and 41.5% were female. The age of respondents ranged from 20 to 32 years old, and the average age was 27.9 years. Respondents were asked to rate the extent of their experience with the web and with computers in general on a scale of 1 to 7, with 1 being a novice and 7 being an expert. This group of subjects considered themselves to be relatively experienced users of the web (4.95), and on their use of computers (5.16). The respondents were composed of 41.6% of undergraduates, 50.3% of graduate (MBA and Engineers) and 8.1% of PhD students.

4.2. Partial Least Square (PLS)

This measurement model was estimated using PLS that have incorporated the model, parameters, and estimation summary in one hand, and on the other hand the model assessment as a whole. PLS is a structured equation modeling (SEM) technique that can analyze structural equations involving multiple-item constructs, with direct and indirect paths [20]. PLS works by extracting successive linear combinations of the predictors and is effective in explaining both response and predictor variation [14]. PLS is a powerful approach for analyzing models because of the minimal demands on measurement scales, sample size, and residual distributions. In addition, the component-based PLS avoids two serious problems, inadmissible solutions and factor indeterminacy [19].

PLS allows one to specify the relationships among the conceptual factors of interest and as well as the measures underlying each construct, resulting in a simultaneous analysis of (1) how well the measures relate to each construct and (2) whether the hypothesized relationships at the theoretical level are empirically true. PLS was used because it is more appropriate than alternatives, such as LISREL and AMOS, when sample sizes are small and models are complex. The goal of the research is to explain the variance, and measures which are not well established (Formell and Bookstein, 1982; [22]).

4.3. Operationalization of research variables

Research constructs were operationalized on the basis of related studies and pilot tests. Most of the research constructs have already been validated and used for other studies on knowledge management, organizational design, or IT management (Table 1).

All questionnaire items use a seven-point Likert scales, varying from strongly disagree to *strongly agree*. To keep the length of the instrument reasonable, fifteen items were selected for the KMS quality variables (Reliability, Flexibility, Integration, Accessibility, Timeliness), and four and five items were selected for Decision Making (exploitation and exploration of knowledge), whereas, organizational learning capability was measured using four items (creation, acquisition, organization, dissemination) and four items for achieving competitive advantage (Problem solving, Increase profitability). The study follows the criteria recommended by [2] for choosing survey items. They recommend removing items that are not relevant to the specific innovation examined in the study, and also deleting items that are very similar to other items. By using these criteria, the items

selected ensure complete coverage of the constructs at hand.

Variables	Related literature
KMS quality (Reliability, Flexibility, Integration , Accessibility, Timeliness)	[31], [54].
Decision making (Exploitation of Knowledge, Exploration of Knowledge)	[42], [43], [21].
Organizational Learning	[53], [33]
Competitive advantage	[34], [45]

Table 1: Operationalization of latent variables

5. Analysis and Results

Following the two-step analytical procedures [27], we then examined the measurement model which include the reliability and discriminant validity of the measures, then the structural model. The rationale of this two-step approach was to ensure that the conclusion relating to the structural relationship was drawn from a set of measurement instruments with desirable properties.

Concerning the assessment of the measurement model, individual item loadings and internal consistency were examined with a reliability test. Individual items loadings and internal consistencies are greater than 0.65 (see table 2), thus are considered adequate [19], and all the weights are statistically significant at $p<0.001$. The uniformity of the distribution of the weighs shows that each item contributes to each constructs equally.

5.1. The measurement Model

5.1.1. Reliability and Validity

One measure of reliability using confirmatory factor analysis used here is the composite reliability (CR) [19]. This measure has frequently been used to test model reliability [49]. The composite reliability which reflects the internal consistency of the indicators ranges from 0.82 to 0.94 for the constructs, indicating a high internal consistency.

The average variance extracted (AVE) to measure the amount of variance that a construct captures from its indicators relative to the variance contained in measurement error was used. All AVE's for the constructs used in this study are greater than 0,63, what indicates that more than 63% of the variance of the indicators can be accounted for by the latent variables. The AVE can be interpreted as both a measure of reliability for the construct and as a means of evaluating discriminant validity [19]. For the case of the discriminant validity assessment, the AVE's should be greater than the square of the correlations among the constructs, which corresponds to the amount of variance shared between a latent variable and its block of indicators, this should be greater than shared variance between the latent variables. In this study, the square root of each AVE value is greater than the off-diagonal elements. The results indicate reasonable discriminant validity among all of the constructs.

To further evaluate/establish the discriminant validity of the constructs, discriminant analysis tests was conducted.

Construct Name	Construct identifier	Number of items	Cronbach Alpha	AVE	CR
Reliability	RE	3	0.71	0.64	0.84
Flexibility	FL	3	0.71	0.63	0.84
Integration	IN	3	0.71	0.65	0.84
Accessibility	AC	3	0.86	0.78	0.91
Timeliness	TM	3	0.66	0.82	0.82
Exploitation	ET	4	0.79	0.87	0.87
Exploration	EP	5	0.92	0.94	0.94
Organizational Learning	OL	4	0.84	0.90	0.90
Competitive advantage	CA	5	0.82	0.87	0.87

Table 2: Summary of Constructs

Using confirmatory factor analysis, the X^2 of the unconstrained model is recorded, which is 2389.883 with 504 degrees of freedom. Constrained models were specified where the co-variances across a pair of factors were constrained to be 1. In each case, the difference in X^2 values between the constrained model and unconstrained model is greater than 4.742, which at a degree of freedom 1 supports significance at a p value of 0.001, indicating that the survey items demonstrate discriminant validity. The analyses with PLS indicate that there exists reasonable discriminant validity among all of the constructs.

5.1.2. The Structural Model

The results of the PLS analysis are shown in Figure 2. To allow for the possibility of effects other than those hypothesized, a saturated model was tested, including paths from all independent variables to each of the measures of effectiveness. To present an uncluttered picture, the non significant relationships have been omitted from the figure.

Summary of the measurement model As shown in Figure 2, the KMS quality variables (reliability, flexibility, integration, accessibility, timeliness), organizational learning capability and competitive advantage have significant effects on decision making (composed by exploitation and exploration of knowledge), with path coefficient of 0.674; 0.224 and 0.372 respectively. KMS quality, organizational learning capability and competitive advantage variables explain 45 percents of the variance for decision making. With regard to organizational learning capability, this is found to be statically significant with the KMS quality KMS, decision making and competitive advantage path coefficient of 0.474, 0.224 and 0.351 respectively. The KMS quality, decision making and competitive advantage explain 41 percent of Organizational learning. Finally, the competitive advantage has significant impact on KMS quality, decision making and organizational learning capability with path coefficients of 0.372, 0.304 and 0.351 respectively. In this case, the competitive advantage explains 78 percent of KMS quality, decision making and organizational learning capability.

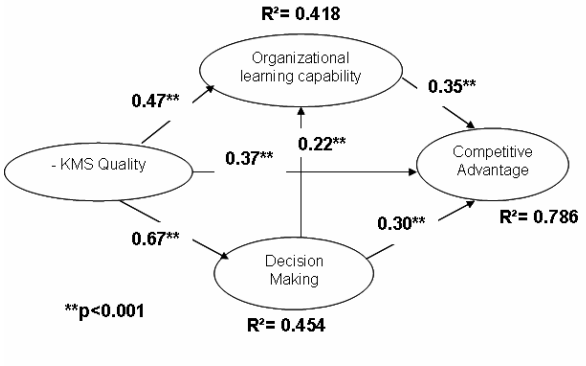

Figure 2: Structural Model

6. Discussion and Implications

The results of the analyses provide support for the role of the KMS quality on decision making (through the combination of knowledge exploitation and exploration) and their effects on organizational learning and firm's ability to achieve competitive advantage. Empirical results have supported the hypotheses. KMS quality explains almost 80% of the variation in competitive advantage through decision making and organizational learning capability (R^2=0.786). All of the paths in the model are statistically significant (at p=0.001 level). It's difficult to compare it to prior studies, because none of them have considered this model as a whole or the methodology followed in this paper.

Different factors or latent variables that can better explain the impact of KMS quality on competitive advantage were explored and developed in order to lead to models that explain greater variance. Motivated by the need to better understand the impact of KMS quality on competitive advantage through decision making and organizational learning capability, this study develop an interconnected theoretical model that reflect the impact of KMS quality on the competitive advantage. The most important determinant of Competitive advantage for this study is the KMS quality, which involves efficient knowledge characteristics such as reliability, flexibility, integration, accessibility and timeliness which are bundled of attributes offered by the KMS. Given the new demands of KMS quality and markets, such specialized systems characteristics warrant further consideration and measurement by researchers.

7. Conclusion

In summary, the proposed model focused mainly on KMS quality effect and their impact on decision making, organizational learning capability and competitive advantage achievement. From one side, it creates a favorable context in which tacit knowledge can be explicated and shared; from the other side, it should allow and support the transfer of explicit knowledge. This study attempts to address several of the issues in KMS research: How should KMS quality be measured in the context of a competitive markets, whether existing measures of KMS quality can be applied, and how firm performance react to KMS? The results also confirm three antecedents of competitive advantage KMS quality, decision making and organizational learning capability that explain approximately 80% of the variance in competitive advantage. The results of this study have to be interpreted bearing in mind some important limitations. Clearly results of the study are bound by the sample size and by the use of the KMS for a specific student project or not in a real business situation. First this platform is still in its initial stages of application which forced us to use a project instead of directly interviewing its potential users. Therefore, further research should examine KMS quality effects in real setting (with its effective users). Second, the sample size is too small to use other methodologies and software's like LISREL or AMOS that need a bigger sample size in order to fulfill the minimum requirement to run the analysis. Another limitation is related to the measures used, which the major parts of them were perceptual. Third, the experimental settings is based on the students contributions that have put themselves in a real project setting, however to assess

how the student are linking organizational learning capability and competitive advantage in these project reduce the real impact of this study, that whey we need to conduct this study in a real business setting .

In the future, research on KMS quality impact on competitive advantage could be extended to consider variations in information quality, use and satisfaction like in DeLone and McLean Model [17]. For future work, it would be worthwhile to consider the effect of the antecedents of KMS success on competitive advantage. Future research might also examine the potential of the KMS success models supporting knowledge flows and achieving competitive advantage.

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