

Investigating Knowledge Management Enablers Affecting Knowledge Management Success in Middle East and North Africa

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Abstract

This study investigates the relationship between Knowledge Management Enablers (KMEs), and Knowledge Management Success (KMS) in the Middle East and North Africa, MENA, region. Data was collected through an online self-administered questionnaire from 251 respondents representing professional managers and employees working in several industries/business sectors in the MENA region. The findings of this research proved the existence of a relationship between KMEs such as organizational culture, organizational structure, Information Technology (IT) support, and KMS. It also highlighted that job satisfaction can be considered as a KME as it has a positive impact on KMS. The organizational culture has a full mediating effect on the relationship between job satisfaction and KMS, and a partial mediating effect between organizational structure and IT support on one side and KMS on the other side. Also, gender and age have no moderating effect on the relationship between organizational culture and KMS. The study concluded that the business sector and the geographical region have no moderating effect on the relationship between IT support and KMS.

Keywords: Knowledge management, knowledge management success, knowledge management enablers, organizational culture, collaboration, trust, learning, organizational structure, decentralization, informality, IT support, job satisfaction.

Abbreviations: CSFs, Critical Success Factors; FMCGs, Fast Moving Consumer Goods; KM, Knowledge Management; KMEs, Knowledge Management Enablers; KMS, Knowledge Management Success; MENA, Middle East and North Africa.

1. Introduction

Rapidly expanding markets and fierce competition demand frequent update of an organization's knowledge. Knowledge has become the key strategic asset, as well as one of the most important competitive advantages. By knowing more, an organization becomes more capable of satisfying the needs of its stakeholders, employees, customers, and other parties with whom it interacts. Also, if an organization knows how it affects its environment, it can work accordingly so as to reduce the environmental impact to a minimum in order to save our planet. Expanding knowledge and efficiently utilizing it, lead to an undeniable sustainability which is crucial for any organization.

In today's world of quick advances and ever growing competition, knowledge is the cornerstone of a pioneering organization. The more knowledge it assimilates, the more powerful it becomes, and this clearly delineates the need to remain continually updated, so that it is conditioned and fit to win in the marketplace at all times.

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There is a long history for Knowledge Management (KM) efforts. It has developed from simple activities such as having corporate libraries, discussion forums, mentoring programs, and professional training to more advanced activities with the advance of information technologies and the wide use of computers, such as group decision support systems, expert systems, knowledge systems, and knowledge repositories. Moreover, Internet has an important role in spreading and sharing knowledge across the world.

Knowledge is one of the companies' key instruments that can lead to having a sustainable competitive advantage and enabling the firm to adapt and survive in its rapidly changing environment. It is not surprising then that several researchers have examined key success factors and enablers of adopting knowledge. There are many knowledge enablers such as information technology, organizational culture, organizational structure, and top management support, which, when aligned and coordinated, can establish far reaching results that will help in KM. However, despite the fact that the proper key success factors can improve a company's capacity to make and manage its knowledge properly, the company still needs to keep its organizational members motivated to get the best benefit of the knowledge and integrate it to the best in its decision making processes.

In spite of the importance of knowledge management and its enablers in the business environment, the studies about them in the MENA region are insufficient. Moreover, few researches addressed the issue of job satisfaction as a KM enabler, affecting the success of KM practices in the organization, which represents another research gap. The existing study tries to narrow these gaps. The overall objective of this study is to investigate the impact of Knowledge Management KM key enablers on the success of KM practices within large organizations in the MENA region. This research is a pioneer study investigating KMEs and their impact on KMS in the MENA. It also helps in assessing the relative effectiveness of each enabler. The research introduces job satisfaction as a new KME. Studying the mediating effect of organizational culture on the relationship between KMEs and KMS had not been discussed in previous studies.

The study is expected to guide organizations to the most important factors that they can invest in to maximize the success of their KM Practices. Concentrating on the most important factors should have positive impact on the organization performance.

2. Literature Review (Km Key Success Factors)

(Holsapple & Joshi, 2000) introduced a distinct structure which presented several components that impact the success of KM. This was achieved through a discussion between thirty one KM professionals to investigate and assess the elements that they had identified earlier. The study distinguished three primary classes of impacting variables; managerial, resources, and environmental.

Another study was led by (Akhavan & Hosnavi, 2009), its specific end goal was to investigate the fundamental issues of KM in some Iranian scholastic research centers, considering, as an initial step, the essential part that knowledge plays in those research organizations. They have identified the Critical Success Factors (CSF) and issues of KM implementations through a literature review. They reached the conclusion that there are five factors to be considered during KM implementations, which are: Human Resource Management (HRM) and a flexible structure, knowledge repositories, KM architecture, benchmarking, and chief knowledge officer.

(Chourides et al., 2003) studied the KM factors from a different point of view; they were interested in identifying the organizational functions which can affect the KM implementations. The identified functions are Strategic Management, HRM and organizational structure, IT, Total Quality Management TQM, and marketing.

As for (Wong, 2005), he had an interesting study focusing on small and medium-sized organizations (SMEs) to distinguish the KM CSFs in this context. He highlighted that existing researches considered only the large organizations when studying CSFs. He proposed eleven factors that can be more suitable for SMEs. However, we did not find any unique elements in the output of his study, as it is consistent with the literature covering this research point. The eleven points are: top management leadership, knowledge supporting culture, IT, knowledge strategy, KMS performance measurement, technical infrastructure, processes and activities, motivations, resources, training and development, and HRM. (Alavi and Leidner, 2001) analyzed a managerial improvement program concerning the requirements for an effective KMS. They concluded that the most important issues related to an organization and its culture were those associated with people with an inspiration to impart and use knowledge. They also thought that it was essential to measure the KM system impact, and to have an IT structure, including databases, with the required functionalities to maintain and manage knowledge.

(Mercado, 2010) proposed a model to classify Critical Success Factors in two categories: managerial and technical. The components fitting in with the managerial measurement are called Managerial Success Factors (MSFs), and those having a place within the technical measurement are named Technical Success Factors (TSFs). MSFs include KM Strategy, top management leadership, and support, KM supporting culture, motivations, structure, and impact assessment and measurement, while TSFs include technical infrastructure and knowledge transfer channels.

Another research was carried out by (Chen, Elnaghi & Hatzakis, 2011), where they analyzed the key success factors having an impact on organizational performance. This research targeted the organizations working in Information and Communication Technology (ICT) field in China. The outcomes of the research affirm that the culture dimension of an organization has a positive impact on the organization performance and its success in the market in which it operates. The study investigated the impact of the cultural components, such as collaboration, trust, and learning environment; it found that all of them have a significant positive impact on performance. Moreover, it showed that the presence of a KM system had a positive effect on KM performance. This is logical as KM systems allow easier access to existing knowledge. On the other hand, it investigated the impact of organizational structure characteristics such as centralization and formalization; it concluded that centralization has a significant negative impact on KM performance, while formalization doesn't have a significant impact.

Table 1 shows a consolidated list of most of the KMEs that are identified in the literature, along with the researcher who had identified them in his research. As we can see, there is a long list of different Key Success Factors; however, the major KMEs that are included in most of the researches are the organizational technical infrastructure enablers, including IT Support, the organizational culture, and the organizational structure. These major KM enablers can be the main variables of future research in this area.

Table 1: Knowledge Management Success Factor Summary (modified from source (Jafari et al., 2009))

Researcher	Ahmar et al. (2006)	Almeida and Hosmer (2009)	Alam and Leong (2001)	Choudhry et al. (2003)	Chen et al. (2011)	Davenport et al. (1997)	Hassanali (2002)	Halsapale and Joshi (2000)	Jaffer et al. (2005)	Liebowitz (1999)	Marcado (2010)	Sage and Fouze (1999)	Skyrme and Lyndon (1997)	Wong (2006)
Critical Success Factor														
Integrated Technical Infrastructure including networks, databases/repositories, computers, software, KMS expert	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
A knowledge strategy that identifies users, user experience level needs, sources, processes, storage strategy, knowledge and links to knowledge for KMS	✓			✓				✓	✓	✓	✓	✓		✓
A common enterprise wide knowledge structure that is clearly articulated and easily understood	✓	✓							✓	✓	✓	✓	✓	
Motivation and commitment of users including incentives and training			✓			✓			✓	✓	✓			✓
An organizational culture that supports learning and sharing the knowledge	✓				✓	✓	✓		✓	✓	✓	✓	✓	✓
Senior Management support including allocation of resources, leadership and providing training	✓					✓	✓	✓	✓	✓	✓			✓
Measures are established to assess the impact of the KMS and the use of knowledge as well as verifying that the right knowledge is being captured	✓	✓	✓			✓	✓		✓		✓	✓	✓	✓
Clear goal and purpose for the KMS.						✓			✓	✓			✓	
Learning Organization and continuous learning, Training and Education.									✓			✓	✓	✓
The search, retrieval, visualization functions of the KMS support easy knowledge use									✓					
Work processes are designed that incorporate knowledge capture and use	✓								✓					✓
Security/Protection of knowledge									✓			✓		
Chief Knowledge Officer (CKO) or equivalent HRM and Organization Structure		✓		✓	✓		✓			✓				✓
Knowledge Transfer Channels											✓			

Research Methodology

3.1 Conceptual Framework

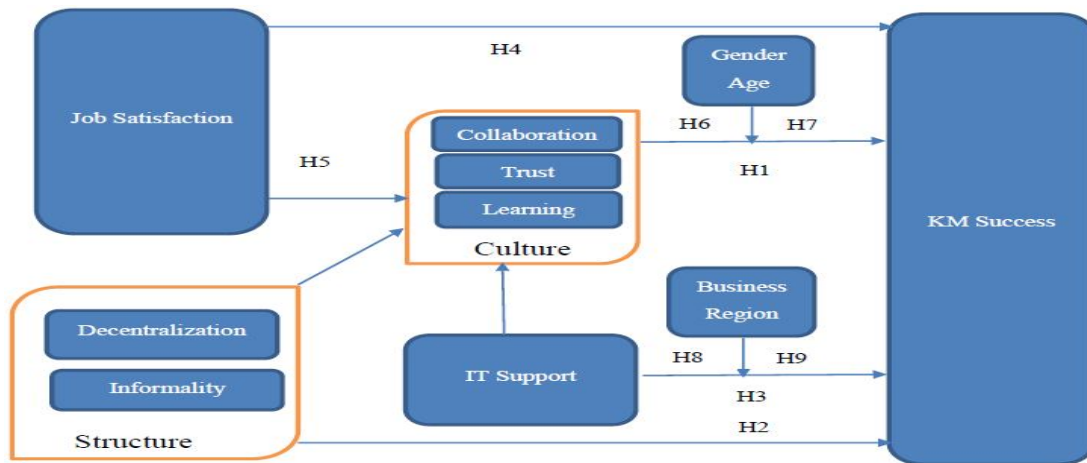


Figure 1: Integrated Conceptual KM Framework

Based on earlier research work, the selected KM enablers are the most common KM enablers; in addition, they are the most suitable for the firms operating in the MENA region, compared to other enablers such as having a KM strategy, or a Chief Knowledge Officer which do not exist in most of the MEN A associations. The framework suggested by (Chen et al., 2011) was modified to be used in this study, as there are some similarities between MENA and the Chinese firms, where authority and seniority are highly respected and top-down decision making approach is widely used. Also, the centralized nature of organizations in these countries may have the same effect on KM practices.

The research has six objectives; *First*: to study the relationship between KMS and observed knowledge management enabler variables such as IT support, organizational culture components collaboration, trust and learning, in addition to organizational structure components, decentralization and informality. This objective is similar to the objective of the study of (Chen et al., 2011), however there are five additional objectives. *Second*: to study the relationship between KMS and KM enablers construct variables, represented by organizational culture and organizational structure. *Third*: to introduce job satisfaction as a new KM enabler. *Fourth*: to test the mediating effect of organizational culture on the relationship between KMEs and KMS. *Fifth*: to study the moderating effects of demographic variables age and gender on the relationship between organizational culture and KMS. *Sixth*: the last objective is to investigate the moderating effects of the business sector and the geographical region variables on the relationship between IT support and KMS.

3.2 Research Variables

Organizational Culture

Collaboration

Examples of collaborative activities are open dialogue between organizational members, social activities, and cooperation or partnership with others to create something. This type of interactions can help the knowledge transfer and exchange between organizational members. Collaboration encourages this kind of reciprocity by decreasing concerns and negative emotions, and expanding openness to various people. With no collaboration, it is expected that organizational KM practices will be negatively affected.

Trust

Effective knowledge exchange and openness between organizational members are positively affected by having trust in the environment.

When connections between individuals are high in trust, individuals are more willing to participate in trading knowledge and social collaborations. Lack of trust can be one of the obstacles to limit knowledge exchange between organizational members.

Learning

It is the process of acquiring new knowledge by individuals who are capable and ready to practice that knowledge, this must be integrated with decision making. It was discussed that the more time and effort exerted while learning, the more the knowledge that is acquired. People ought to be encouraged to make inquiries for effective knowledge exchange and sharing. Learning in organizations can be expanding through training, practicing and mentoring programs to share experiences, since the traditional techniques may not be sufficient. Another important note is that learning must be a continuous process.

Organizational Structure

Decentralization

Decentralization refers to the distribution of decision authority and control within an organizational entity. The concentration of decision-making authority inevitably reduces creative solutions while the dispersion of power facilitates spontaneity, experimentation, and the freedom of expression, which are the lifeblood of knowledge creation. Therefore, many researchers proposed that a centralized organizational structure makes it harder to create knowledge.

Informality

Informality refers to the degree to which decisions and working relationships are not governed by formal rules, standard policies, and procedures. Knowledge creation requires flexibility and less emphasis on work rules. The range of new ideas seems to be restricted when strict formal rules dominate an organization. On the other hand, formalization will lead to more knowledge codification and documentation of business rules, procedures, and standards which can have a positive impact on knowledge transfer.

IT Support

Information technology (IT) is widely used to link individuals with reusable systematized knowledge, and it encourages open discussions between organizational members. It can be considered as a common medium for the knowledge stream. By utilizing information technology in an association, streams of knowledge that were disconnected long ago can be rejoined. Interests in information technology appear to be inevitable for the expansion of KM ventures. Advanced KM frameworks pay off because of their capacity to exploit existing knowledge. IT facilitates the usage and management of knowledge, and helps organizations to realize the expected benefits from it.

Job Satisfaction

There are many definitions for job satisfaction. In general, it can be considered as the positive or negative feelings that employees have towards their work (Odom et al., 1990). There are many researches concerned with the relationship between job satisfaction and KMEs such as organizational culture (McKinnon et al., 2003), (Arnold & Spell, 2006) and (Chang & Lee, 2007), and learning both on the individual and group levels, (Bontis et al., 2002), which shows that there is a positive impact of KMEs on job satisfaction; however, there were few researches on the relationship between job satisfaction and KM Success.

3.3 Hypotheses

H1: Organizational culture has an impact on KMS

H1.a: Collaboration has a positive impact on KMS.

H1.b: Trust has a positive impact on KMS

H1.c: Learning has a positive impact on KMS

H2: Organizational structure has an impact on the KMS

H2.a: Decentralization has a positive impact on KMS

H2.b: Informality has a negative impact on the KMS

H3: IT support has a positive impact on KMS

H4: Job satisfaction has a positive impact on KMS

H5: Organizational culture mediates the relationship between organizational structure, IT support, job satisfaction, and KMS

- H6: Age moderates the relationship between organizational culture and KMS
 H7: Gender moderates the relationship between organizational culture and KMS
 H8: Business sector moderates the relationship between IT support and KMS
 H9: Geographical region moderates the relationship between IT support and KMS

3.4 Data Collection

The study sample for this research is selected from companies representing several industries and business sectors such as Fast Moving Consumer Goods (FMCGs), Telecommunications, Oil and Gas, Banking, Financial Services and IT Services. Moreover, the selected companies are considered to be active in KM practices and initiatives. The survey respondents include professional managers and knowledge workers. Responses to the questionnaire were collected through online survey. Data collection took a total of 3 months starting from July 2015 till September 2015. A total of 251 questionnaire responses were collected, out of which 212 were complete acceptable responses. A total of 39 responses were excluded, as 34 of them were incomplete, and the other five did not belong to large companies, as per the used definition. The sample size (212) was considered appropriate, since it met the minimum sample size required by factor analysis (5 for each variable), stepwise regression (10 for each variable), and structural equation modeling (a minimum of 200 cases).

3.5 Sampling

The population of this research includes the managers and knowledge workers in the chosen organizations. Knowledge workers are middle managers or employees working on new innovations, Research & Development, IT and similar functions which develop, maintain, and use knowledge extensively, focusing on middle management as they are the real "Knowledge Engineers" of the knowledge creating companies (Nonaka & Tagussi, 1995). The research employed a non-probability sampling using convenient sampling by collecting the questionnaire answers from members of the population who are conveniently available to provide it.

4. Research Results

A statistical analysis is conducted to investigate the relationships between the research variables such as organizational culture, organizational structure, IT support, job satisfaction, and KMS. The analysis starts by introducing the characteristics of respondents, then moving on to the measurement of reliability and validity of the research scales, followed by a descriptive analysis for the research variables, and finally by performing simple and multiple linear regressions. Questionnaire responses were collected from 212 respondents, and they were analyzed using the statistical package of IBM SPSS- version 19.0.

4.1 Characteristics of Respondents

As mentioned earlier, 212 complete questionnaire responses were collected. Research samples were analyzed from four different perspectives: age, gender, business sectors, and geographical regions.

Table 2: Characteristics of Respondents

Variable	Categories	Frequency	Percent
Age	Less than or equal 30 Years old	57	26.9%
	31 to 40 Years	103	48.6%
	More than 40 Years	52	24.5%
Gender	Male	171	80.7%
	Female	41	19.3%
Business Sector	Banking/Financial Services	38	17.9%
	FMCG	84	39.6%
	IT/Telecom	39	18.4%
	Oil & Gas	34	16.1%
	Others	17	8%
Geographical Region	Middle East	82	38.7%
	North Africa	130	61.3%

From age perspective, The highest percentage of the sample size belongs to mid category, from 31 to 40 years old, with 103 respondents representing 48.6% of the total sample size, followed by the younger group, less than or equal 30 years old, with 57 respondents representing 26.9% of the total sample size, while the smallest group belongs to the oldest category above 40 years old, with 52 respondents representing 24.5% of the total sample size.

With respect to gender, the highest percentage belongs to the male group with 171 respondents representing 80.7% of the total sample size, while the female group has 41 samples representing 19.3% of the total sample size.

With respect to business sectors, the highest percentage of the sample size belongs to FMCG sector with 84 respondents representing 39.6% of the total sample size, followed by IT/Telecommunications sector with 39 respondents representing 18.4% of the total sample size. Banking/ Financial Services sector has the third rank with 38 respondents representing 18.4% of total sample size, while Oil and Gas sector was in the fourth rank with 34 respondents representing 16.1% of the total sample size. Other sectors such as Construction, Pharmaceutical Industry, and Garments Industry sectors were consolidated into one category as they had a few numbers of respondents.

From the perspective of the geographical region, research respondents were categorized into two categories: Middle East and North Africa. With respect to the Middle East, samples were collected from KSA, UAE, Kuwait, Qatar, Iraq, and Turkey. North Africa responses collected from Egypt, Morocco, Algeria and Sudan. The North Africa group has a higher number of respondents, 130 respondents, representing 61.3% of the total sample size, while the Middle East group has only 82 respondents representing 38.7% of the total sample size.

4.2 Reliability and Validity

Reliability is the consistency of measurement, reflecting how closely related a set of items are as a group (Hair et al., 1998). Cronbach's alpha, as the most commonly used test for reliability, was used to assess the reliability of the multidimensional scales of this study. Cronbach's alpha can range from zero to one; values closer to zero indicate low reliability. The generally agreed-upon lower limit for Cronbach's alpha is 0.7, yet it may decrease to 0.6 in exploratory studies. (Robinson et al., 1991). Table 3 shows that all research variables have high reliability measures with Cronbach's alpha exceeding 0.7, which means that all elements for each scale are internally consistent and measuring the same construct.

Table 3: Reliability of Research Variables

#	Variable	No. of Items	Reliability Measure
1	Collaboration	3	0.849
2	Trust	5	0.89
3	Learning	4	0.898
4	Decentralization	4	0.85
5	Informality	2	0.768
6	IT Support	4	0.892
7	Job Satisfaction	3	0.933
8	KM Success	3	0.875

Both convergent validity and discriminate validity were examined. Convergent validity is important to guarantee that the items measuring the same construct are highly correlated, while discriminate validity is used to make sure that the scales used to measure the study variables are not correlated and the respondent was able to distinguish between the meanings of the items of the questionnaire (Churchill, 1979; Hair et al., 1998). Research variables were factor analyzed using Principle Component Analysis and Varimax rotation. The result of the KMO test are found to be more than 0.6 except of organizational structure with a value of 0.5, which can be considered low but still acceptable (Kaiser, 1974), indicating that factor analysis is appropriate for these data. Moreover, factor analysis was supported by Barlett's test, measuring the null hypothesis that the original correlation matrix is an identity matrix (Field, 2005). The results of Barlett's test are all significant below the 0.01 level, representing an existence of a relationship between the variables. Convergent validity test was performed in two stages, the first stage is for observed variables using AVE, and the second stage is for latent variables using factor analysis.

For Discriminate Validity, based on the criterion set by (Hair et al., 1998), "to achieve discriminate validity, the squared inter-correlation between two constructs should be less than the AVE estimates of the respective two constructs for all pairs of constructs". It was found that data analysis of the current study supports the discriminate validity of the research constructs, based on the criterion on (Hair et al., 1998).

4.3 Frequency Table

Table (4) provides the summary of the frequency distribution of the collected survey responses showing the percentage of answers for each level on Likert scale.

Table 4: Frequency Distribution

Research Variable	Strongly Disagree	Disagree	Neutral	Agree	Strongly Disagree	Mean
Collaboration	0.2%	4.7%	28.8%	58.2%	8.2%	3.7
Trust	1.5%	15.3%	36.8%	40.7%	5.8%	3.3
Learning	5.7%	22.8%	25.4%	38.7%	7.5%	3.2
Decentralization	6.4%	38.3%	32.2%	21.2%	1.9%	2.7
Informality	7.8%	38.0%	25.2%	23.8%	5.2%	2.8
IT Support	0.4%	6.7%	24.1%	49.5%	19.3%	3.8
Job Satisfaction	1.1%	9.7%	37.1%	48.0%	4.1%	3.4
KM Success	1.4%	11.8%	25.8%	48.9%	12.1%	3.4

4.4 Summary of Hypotheses Testing Results

Table 5: Summary of Hypotheses Results

Hypothesis	Status
H1: Organizational Culture has an impact on Knowledge Management Success	Accepted
H1.a: Collaboration has a positive impact on Knowledge Management Success.	Accepted
H1.b: Trust has a positive impact on Knowledge Management Success	Accepted
H1.c: Learning has a positive impact on Knowledge Management Success	Accepted
H2: Organizational Structure has an impact on the Knowledge Management Success	Accepted
H2.a: Decentralization has a positive impact on Knowledge Management Success	Accepted
H2.b: Informality has a negative impact on the Knowledge Management Success	Accepted
H3: IT Support has a positive impact on Knowledge Management Success	Accepted
H4: Job Satisfaction has a positive impact on Knowledge Management Success	Accepted
H5: Organizational Culture mediates the relationship between Organizational Structure, IT Support, Job Satisfaction and KM Success	Accepted
H6: Gender moderates the relationship between Organizational Culture and Knowledge Management Success	Rejected
H7: Age moderates the relationship between Organizational Culture and Knowledge Management Success	Rejected
H8: Business Sector moderates the relationship between IT Support and KM Success	Rejected
H9: Geographical Region moderates the relationship between IT Support and KM Success	Rejected

5: Discussion, Conclusion, and Recommendations

5.1 Introduction

This section discusses the research findings, implications, research limitations, and suggestions for future work. The mean below 2.5 is considered negative, 2.5 is neutral, between 2.5 and 3.5 is positive, and more than 3.5 is very positive, which is also based on the percentage of frequencies (Sekaran & Bougie, 2003).

5.2 Relationship between Knowledge Management Enablers and KMS

It was found that IT support has the highest impact on KMS among other KMEs, then organization culture in the second position, followed by job satisfaction, and finally the organizational structure.

On the other hand, the relationship between KMEs and KMS are mediated by organizational culture, partially in case of IT support and organizational structure, and fully in case of job satisfaction.

5.2.1 Organizational Culture

Organizational culture is one of the most common KMEs which were studied by other researchers. The current study supports its positive impact on KMS. The findings comply with other researches such as (Davenport et al., 1997), (Skyrme & Amidon, 1997), (Liebowitz, 1999), (Sage & Rouse, 1999), (Hasanali, 2002), (Jennex et al., 2005), (Wong, 2005), (Akhavan et al., 2006), and (Mercado, 2010). This leads to the acceptance of hypothesis H1.

The organizational culture has a mediating effect on the relationship between other KMEs; however, this will be discussed later in a separate section. With respect to the subordinating hypotheses of H1 related to organizational culture components, data analysis supports the positive effect of the three examined components, collaboration, trust, and learning, on KMS, leading to the acceptance of the subordinating hypotheses H1a, H1b, and H1c. The existing research concludes findings similar to what was published by Skyrme and Amidon (1997), Sage and (Rouse, 1999), (Jennex et al., 2005), (Wong, 2005), and (Chen et al., 2011) about the impact of the organizational cultural components.

5.2.2 Organizational Structure

Organizational structure is another KME which was frequently studied by other researchers such as (Hasanali, 2002), (Chourides et al., 2003), (Wong, 2005), and (Akhavan et al., 2006). The current study supports findings similar to the aforementioned studies, leading to the acceptance of hypothesis H2. The research supports the positive impact of decentralization on KMS in the MENA region which is similar to what was published by (Chen et al., 2011) about China. However, the two studies have different conclusions about informality, as this study supports the negative impact of informality on KMS, whereas (Chen et al., 2011) found that there is no significant relationship between both, although the regression models in both studies have the same sign of unstandardized beta coefficients. It may be normal to have this negative relationship between informality and KMS, as informality would have a negative effect on the codification of knowledge, hence the required conversion from tacit knowledge to explicit knowledge. This leads to the acceptance of subordinating hypothesis H2a, and H2b

5.2.3 IT Support

It was found that IT support is one of the most common KMEs which were studied by other researchers such as (Davenport et al., 1997), (Skyrme and Amidon, 1997), (Liebowitz, 1999), (Sage and Rouse, 1999), (Alavi and Leidner, 2001), (Hasanali, 2002), (Chourides et al., 2003), (Jennex et al., 2005), (Wong, 2005), (Akhavan et al., 2006), (Akhavan and Hosnavi, 2009), (Mercado, 2010), and (Chen et al., 2011). The current study supports the positive impact of IT on KMS. The findings comply with the aforementioned studies, leading to the acceptance of hypothesis H3.

5.2.4 Job Satisfaction

Few researches were carried out in which job satisfaction was considered as a KME; however, it was decided to include it in this study due to the importance of both variables, and their positive impact on organizational performance. The current study supports the positive impact of job satisfaction on KMS. This leads to the acceptance of hypothesis H4.

5.3 Mediating Effect of Organizational Culture

The organizational culture plays an important role mediating the relationship between other KMEs included in the study, and KMS. It was proved that there is a partial mediation of organizational culture on the impact of both organizational structure and IT support on KMS, as both of them have less significant unbiased coefficients in the presence of organizational culture compared to the case when it does not exist, while organizational culture has full mediation on the impact of job satisfaction on KMS, as job satisfaction impact is insignificant in the presence of organizational culture. The explanation is that both organizational structure and IT support affect KMS directly, and indirectly through organizational culture, while Job Satisfaction affects KMS indirectly only through organizational culture.

5.4 Moderating Effects

Not many researches were done in the MENA region on the moderating effect of demographics on KMEs. As it was found that organizational culture and IT support have the highest impact on KMS among other KMEs, so it was decided in this research to explore if there are any moderating effects of the gender and age variables on the relationship between organizational culture as independent variable and KMS as dependent variable, in addition to the investigation of the moderating effect of business sector, and geographical region on the relationship between IT support as independent variable and KMS as dependent variable.

It was found that gender and age do not have a significant moderating impact on the relationship between organizational culture and KMS. The same results were concluded about the absence of a significant moderating impact of the business sector and geographical region on the relationship between IT support and KMS.

5.5 Methodological Assumptions and Limitations

The results of this research are limited to companies in the MENA region. Therefore, researches that are more empirical are required through data collection in other countries.

5.6 Suggestion for Future Work

This research can be extended to study the impact of KMEs on company performance, and to what extent these enablers can help companies achieve their strategies. Moreover, the next research can cover the SMEs.

5.7 Conclusion

The current study provides the empirical support for the relationship between KM enablers and KMS in the MENA region. It was shown that:

- Organizational culture and its components collaboration, trust and learning, have a positive impact on KMS.
- The first organizational structure component, decentralization, has a positive impact on KMS.
- The second organizational structure component, informality, has a negative impact on KMS.
- Organizational structure has a significant impact on KMS.
- IT support has a positive impact on KMS.
- Job satisfaction has a positive impact on KMS
- Organizational culture has a perfect mediating impact effect on the relationship between job satisfaction and KMS, and a partial mediating effect on the relationship between organizational structure and IT support on one side and KMS on the other side.
- There is no moderating effect of gender or age on the relationship between organizational culture on one side, and KMS on the other side.
- There is no moderating effect of business sector or geographical region on the relationship between IT support on one side, and KMS on the other side.

It was found that IT support has the highest impact on KMS among other KM enablers, then organizational culture in the second position, followed by job satisfaction, and finally the organizational structure.

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References

- Akhavan, P., Hosnavi, R. (2009). Movement of Iranian Academic Research Centers towards Knowledge Management: an Exploration of KM Critical Factors. *International Conference on Information Management and Engineering*, IEEE Computer Society.
- Akhavan, P., Jafari, M. and Fathian, M. (2006). Critical success factors of knowledge management systems: a multi case analysis. *European business review*, 18 (2), pp. 97-113.
- Alavi, Maryam; Leidner, Dorothy E. (2001). Review: Knowledge Management and Knowledge Management Systems: Conceptual Foundations and Research Issues. *MIS Quarterly*, 25 (1), 107–136.
- Arnold, T. and Spell, S. C. (2006). The Relationship between Justice and Benefits Satisfaction. *Journal of Business and Psychology*, 20(4), 599-620.
- Bontis, Nick; Crossan, M.; Hulland, J. (2002). Managing an Organizational Learning System by Aligning Stocks and Flows. *Journal of Management Studies*, 39 (4), 437–469. doi:10.1111/1467-6486.t01-1-00299.
- Buitendach, Johanna H, Rothmann, Sebastiaan (2009). The Validation of the Minnesota Job Satisfaction Questionnaire in Selected Organizations in South Africa. *SA Journal of Human Resource Management*, Vol.7, No. 1.
- Chang, S. and Lee, M. S. (2007), A study on the relationship among leadership, organizational culture, the operation of learning organization and employees' job satisfaction. *Learning Organization*, 14(2), 155-185.

- Chen, Weifeng, Elnaghi, Marwan, and Hatzakis, Tally (2011). Investigating Knowledge Management Factors Affecting Chinese ICT Firms Performance: An Integrated KM Framework. *Information Systems Management*, 28, 19–29.
- Churchill, G. (1979). A Paradigm for Developing better measures of Marketing Constructs. *Journal of Marketing*, 16, 64-73.
- Chourides, P., Longbottom, D., and Murphy, W. (2003). Excellence in Knowledge Management: an Empirical Study to identify Critical Factors and Performance Measures. *Measuring Business Excellence*, Vol. 7 No.2, pp.29-45.
- Davenport, T., De Long, D., Beers, M. (1997). Building Successful Knowledge Management Projects, *Sloan Management Review*, 39(2), 43-57.
- Field, A. P. (2005). *Discovering Statistics Using SPSS (2nd Edition)*. London: SAGE Publications Ltd.
- Hair, J. F., Anderson, R. E., Tatham, R. L., and Black W. C. (1998). *Multivariate Data Analysis (5thed.)*. Upper Saddle River, New Jersey: Prentice Hall.
- Hasanali, F. (2002). Critical Success Factors of Knowledge Management. *APOC*.
http://providersedge.com/docs/km_articles/Critical_Success_Factors_of_KM.pdf
- Holsapple, C.W., Joshi, K.D. (2000). An investigation of Factors that Influence the Management of Knowledge in Organizations. *Journal of Strategic Information Systems*, 9 (2/3), 235-61.
- Jafari M., Akhavan P., Mortezaei A. (2009). A Review on Knowledge Management Discipline. *Journal of Knowledge Management Practice*, 10 (1), March 2009.
- Jennex, M.E., Zakharova, I. (2005). Knowledge Management Critical Success Factors.
<http://ptarpp2.uitm.edu.my/silibus/knwMgtCricSuces.pdf>
- Kaiser, H. F. (1974). An Index of Factorial Simplicity. *Psychometrika*, 39 (1), 31-36.
- Liebowitz, J. (1999). Key Ingredients to the Success of an Organization's Knowledge Management Strategy. *Knowledge and Process Management*, 6 (1), 37-40.
- Liebowitz, J. (2005). Developing Metrics for Determining Knowledge Management Success: A Fuzzy Logic Approach. *Issues in Information Systems*. 6 (2), 36–42.
- McKinnon, L. J., Harrison, L.G., Chow, W.C. and Wu, A. (2003). Organizational culture: Association with commitment, job satisfaction, propensity to remain and information sharing in Taiwan. *International Journal of Business Studies*, Vol. 11, 25-44.
- Mercado, Luis Carlos Cámpiz (2010). Influence of Critical Success Factors of Knowledge Management on the Innovation Performance of Colombian Organizations, 8th Latin American and Caribbean Conference for Engineering and Technology (LACCEI'2010), *Innovation and Development for the Americas*, June 1-4, 2010, Arequipa, Perú.
- Nonaka, I., & Takeuchi, H. (1995), The Knowledge Creating Company: How Japanese Companies Create the Dynamics of Innovation? *Harvard Business Review*. July - August 2007.
- Odom, R. Y., Boxx, W. R., and Dunn, M. G. (1990). Organizational cultures commitment, satisfaction, and cohesion. *Public Productivity Management Review*, 14, 157-168.
- Robinson, J., Shaver R., and Wrightsman L. (1991). Criteria for Scale Selection and Evaluation, in measures of Personality and Social Psychological attitudes. San Diego, Calif.: Academic Press.
- Sage, A.P. and Rouse, W.B. (1999). Information Systems Frontiers in Knowledge Management. *Information Systems Frontiers*, 1(3), 205-219.
- Sekaran, U., and Bougie, R. (2009). *Research Methods For Business: A Skill Building Approach (5th edition)* John Wiley and Sons, Ltd, Publication.
- Skyrme, D., and Amindon, D. (1997). The Knowledge Agenda. *Journal of Knowledge Management*, 1 (1), 27-37.
- Wong, K.Y. (2005). Critical Success Factors for Implementing Knowledge Management in Small and Medium Enterprises. *Industrial Management & Data Systems*, Vol. 105 (3), 261-279.