

## Identifying Knowledge Management System Core Competencies

### A case study of Wadi Alshatti University

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#### **Abstract:**

This study investigates the possible causes of resistance or support among knowledge workers to Knowledge Management System (KMS) within a project team and organization. Today, universities are beginning to understand the relevance and importance of knowledge management systems. Similarly, universities are beginning to appreciate knowledge as the most significant and valued asset that leads to effective organizational performance. This research aims to investigate the role of certain factors in organizational culture for the success of KMS. Factors such as interpersonal Cultural and Technical among staff, human, and organizational structure play an important role in defining the relationships among staff, creating possibilities for breaking the obstacles to KMS in the WadiAlshatti University (WAU) in Libya.

**Key words:** Knowledge, Management, System, Competencies. Staff.

## تحديد الكفاءات الأساسية لنظام إدارة المعرفة: دراسة حالة جامعة وادي

### الشاطي

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### الملخص

تبحث هذه الدراسة في العوامل المحتملة سواء المقاومة أو الداعمة بين العاملين في مجال المعرفة من خلال نظام إدارة المعرفة داخل فريق المشروع في المنظمة. اليوم، بدأت الجامعات في فهم أهمية أنظمة إدارة المعرفة، وعلى نحو مماثل، بدأت الجامعات في تقدير المعرفة باعتبارها الأصول الأكثر أهمية وقيمة، والتي تؤدي إلى الأداء التنظيمي الفعال. يهدف هذا البحث إلى دراسة دور بعض العوامل في الثقافة التنظيمية لنجاح نظام إدارة المعرفة. نظام ادارة المعرفة تؤثر بها عوامل مثل الثقافة الشخصية وعامل التقنية بين الموظفين والهيكلي البشري والتنظيمي دورًا مهمًا في تحديد العلاقات بين الموظفين، مما يخلق إمكانيات لكسر العقبات التي تعترض طريق إدارة المعرفة في جامعة وادي الشاطي في ليبيا.

الكلمات الدلالية: نظام، ادارة، المعرفة، العاملين، الكفاءة.

### 1. Introduction

The well-known knowledge era has radically changed the values in organizations (Carlisle, 2001). Since the emergence of this era, the long-term viability and prosperity of organizations has been viewed as being increasingly dependent on the ability of organizations to leverage the concealed worth of this crucial, acquired, intangible knowledge. In previous years, the commodities of the capital and labor-intensive firms were gradually replaced owing to continuous change in market expectations and increased demand for new products introduced by knowledge-intensive firms (Calvo, 2019), (Ali & Ahmad, 2006). Knowledge Management System (KMS) is undoubtedly an important component in all

organizations, especially in universities that pursue knowledge as an intangible and highly sought asset. KMS is important in distinguishing the competitive and rapidly changing environment, as it enables not only intellectual reuse but also the renewal of knowledge possessed by university employees. Therefore, Barachini, (2009) emphasized that these organizations must continuously motivate their employees to share valuable information to leverage their intellectual capital. This study aims to examine the KMS strategies that help increase the tendencies of employees in WAU in Libya to engage in KMS practices.

## 2. Problem statement

WAU needs to exploit its core competency for business and Knowledge in order to compete with the local public and private universities in Libya in terms of people, process, and product. Limited career growth opportunities in WAU may cause many staff to switch to other higher education institution that promised better career development, particularly newly established universities. WAU must try to identify distinct core competencies and improve ways of attracting good technical staff, lecturers, students, and grants in order to be support excellence and academic management of education. Many technical staff and lecturers who have been trained by WAU had left the university and this pose a serious problem to the morale of the staff that would have to bear the burden left behind. (Adeinat, & Abdulfatah, 2019), (Wan Rozaini& Haitham, 2005). Apart from people, the process and product core competencies need to be clearly identified in order to make WAU more competitive.

University KM executives must understand the complex streams of technology and work activities that make up core competencies for the university as well as the Computer Centre, with sufficient detail to be able to assess the organization's strength to gain competitive advantage and to exploit those forces driving the market dynamics. (Khalid et al, 2002).

### 3. Background of the study

The importance of research comes from that of the research variables in contemporary organizations and societies. This importance is likewise revealed through the ways by which organizations could be provided with information and communication technology to expand the possibilities of KMS, which could not have been achieved previously, as well as to provide real opportunities for KMS to contribute to their strategic development. This study provides significant influence and impact in determining the success of the sharing of warranted knowledge among employees of WAU to achieve organizational competitiveness. The research findings provide useful information and deepen the understanding of KMS in motivating their employees to engage in Knowledge practices.

### 4. Scope of the Study

This paper aims to assess the level of KMS among the staff and managers of a number of WAU in Libya. Through questionnaires and interviews, we evaluate the exchange of experiences and knowledge based on documents and all elements of knowledge, to identify the factors hindering KMS in WAU. The results of our survey are analyzed using SPSS software.

### 5. Objective

The research aims to:

- 1- To identify the KMS core competencies of WAU.
- 2- To evaluate current KMS core competencies.

## 6. LITERATURE REVIEW

### 6.1. Knowledge in Universities: Definition and Key Concepts

Knowledge that is of value to an organization, made up of human capital, structural capital, and customer capital (Adelman, & O'Neill, 2007). Knowledge asset: May be a best practice, lesson learned, process, procedure, guide, tip, patent or any other form of explicit, reusable knowledge, (Chaithanapat& Rakthin, 2022). An element of intellectual capital, what an organization knows or needs to know to enable its business processes to generate profits, More generally, people and technology might be described as knowledge

assets, Knowledge base is an organized structure of information which facilitates the storage of intelligence in order to be retrieved in support of a knowledge management process (Hicks, Dattero&Galup, 2006). In this research defined as the knowledge is intellectual capital in universities. That is important in KS process in organization and how support KS between the staff in universities.

### 6.2. Knowledge Management (KM) In Universities

KM is concerned with developing and cultivating systems that enable organizations to detect, leverage, distribute and improve their knowledge assets. KM comprises of the following ‘steps’: knowledge generation, sharing, adaptation, application and new knowledge creation (Meese & McMahon 2012). Dearing et al, (2011), (Zhao & Shenkar, 2022). KM can also be viewed as an input output process where the input comes from individual knowledge of a person, which is created, transferred and integrated within the universities, whilst its output is organizational knowledge which is a source of competitive advantage (khanbabaei, Lajevardi, &Kohsari 2011). Effective KM helps managers to eliminate the obstacles between those who know and those who do not know (Allame, 2011). Therefore, for the propose of this research KM is defined as involves any activity related to the capture, use and sharing of knowledge by the universities, That new ideas are created within the function, the best of the ideas are utilized and then the knowledge is stored in the function where it can easily be reused by staff in universities.

### 6.3. Km Processes in Universities

KM is the process of allowing knowledge flow to improve shared understanding, learning, and decision making; such a flow denotes the ease of knowledge movement throughout and among universities, and knowledge must flow to be functional (Stuhlman 2012). KM initiates shared understanding via the conformity of people, processes, and tools within an organizational structure and culture to encourage synergy between leaders and subordinates, thereby leading to effective decisions and allowing improved

flexibility, adaptability, integration, and synchronization to generate a relative benefit (Cheng, 2012). Therefore, for this paper KM process defined as new knowledge created by the UWA through knowledge sharing is the result Success of KM process in UWA.

#### **6.4. Knowledge Management System (KMS) In Universities**

KMS is the IT used in KM that allows organizations to administer effective and efficient knowledge. There are demonstrate that (KMS) are one of the most effective methods of managing, formalizing and automating knowledge in organizations, such as universities if they are applied in appropriate areas and to appropriate tasks. A KMS usually captures and organizes knowledge, thus increasing productivity by reducing the time taken to perform a problem solving task (Subramanian& Geetha, 2012). KMS provides opportunities in KM, such as the ability to help people to connect with the right people they are looking for right decision (Setiawan& Hussin 2012). Therefore, for this paper as KMS also stresses information technology used to facilitate knowledge sharing in UWA.

### **7. Theoretical Framework of the Study**

#### **7.1. Organizational Knowledge Capability**

The core capabilities of a knowledge organization are important in providing information and knowledge-based services. (Yang & Chen, 2007). Wiig (1994) claims that KM initiatives would fail if the investments of organizational resources and capabilities are inappropriate. In other words, effective KM should contribute to organizational performance through the development of organizational knowledge capability (Malhotra&Segars 2001). Empirical studies (Yang & Chen, 2007), reveal that the organizational capability to learn or acquire the required knowledge from other organizations is a key resource for successful KS. Thus, the enhancement of knowledge capabilities as the foundation of organizational development is beneficial for organizational effectiveness. Normally, organizations invest on process improvement, work effectiveness, learning, and supporting technology that facilitate knowledge (Lee's 2001). Please refer to figure 1.

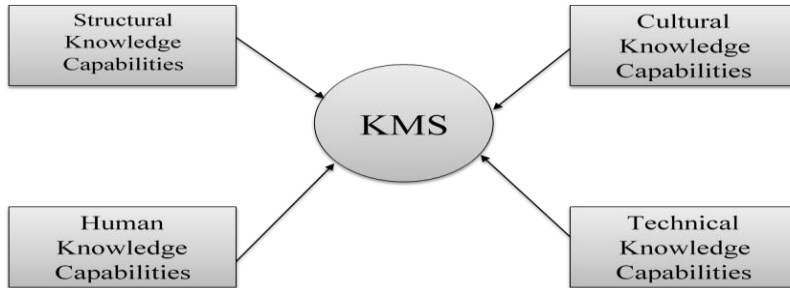


Fig. 1. A framework linking organizational knowledge capabilities to KMS  
(Source: Cresswell& Plano Clark, 2007)

## 8. RESEARCH METHODOLOGY

In connecting the two data types, the researchers realized the need for further data collection to support results after analyzing the first set of data. Therefore, following the results of the initial phase, the second phase of data collection is marginal and supportive, intended to explain the initial results, as shown in figure 2, (Cresswell& Plano Clark, 2007).

Design of the research process

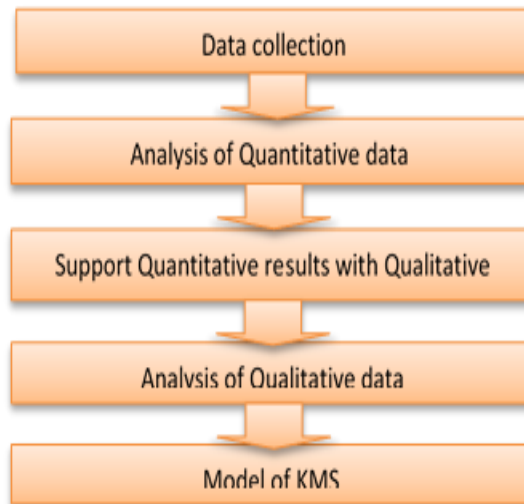


Fig 2. Connecting the data mixed method

## 9.RESULTS AND DISCUSSION

### 9.1.Data Processing and Analysis

The data collected were verified for accuracy. Data cleaning was performed using descriptive statistics, coding, and data entry to ensure correct frequencies in data. Inconsistencies and errors were eliminated, and the data were adjusted for missing values and outliers. The cleaned data were then verified using a reliability test.

### 9.2. Demographic Characteristics of the Research Sample

This section reports the demographic characteristics of the survey participants. Majority of the respondents were between the ages of 25 and 35 (58 percent). Nearly 12 percent were below 25, 24 percent were between 36 and 45, around 4 percent were above 50, and only 2 percent were between 46 and 50. Approximately 36 percent of the respondents had work experience ranging from one to five years; nearly 20 percent had 11 to 20 years of experience, 20 percent had 6 to 10 years of experience, 20 percent have worked for over 20 years, and 10 percent started working less than a year ago. Approximately 46 percent of the participants were operational staff, 40 percent were middle-level managers, and nearly 14 percent were senior/executive managers. Please refer to Table 1.

**Table 1. General Information**

Demographic Variables	No. of Respondents	%
<b>Gender</b>		
Male	43	86.0
Female	7	12.0
<b>Age</b>		
Less than 25	6	12.0
26 to 35	29	58.0
36 to 45	12	24.0
46 to 50	1	2.0
Above 50	2	4.0
<b>Education</b>		
Diploma	1	2.0
Bachelor's degree	1	2.0
Master's degree	25	50.0
Ph.D.	23	49.0



<b>Position</b>		
Operations staff	23	46.0
Middle-level managers	20	40.0
Executive managers	7	14.0
<b>Experience</b>		
Less than one year	10	20.0
1 to 5 years	18	36.0
6 to 10 years	10	20.0
11 to 20 years	10	20.0
More than 20 years	2	4.0

### 9.3. RELIABILITY ANALYSIS

Reliability analysis was conducted to determine the extent to which the items in the questionnaire were related to each other, thus providing an overall index of repeatability or internal consistency of the scale and identifying problematic items that should be excluded from the scale. The reliability procedure calculates a number of commonly used measures of scale reliability and provides information on the relationships between the individual items in the scale. Cronbach's (1970) alpha was computed to assess the model of internal consistency based on the average inter-item correlation to determine the homogeneity of items. Cronbach's alpha estimates the proportion of variance that is systematic or consistent in a set of test scores. It can range from 0.0 (if no variance is consistent) to 1.00 (if all the variances are consistent), with all values in between being possible. A Cronbach's alpha of  $<0.5$  implies a low correlation. Reliability analyses were conducted on the independent and dependent variables, yielding a Cronbach's alpha value of 0.831. As a rule of thumb, a value close to 1.0, typically over 0.70, signifies high reliability (Berstein & Nunnally, 1994). The reliability testing results and probability distribution of the OKC and KS variables are presented in Tables 2 and 3.

**Table 2. Reliability Analysis**

Variables	No. of items	Alpha Coefficient
Cultural Knowledge Capabilities (CKC)	15	.756
Structural Knowledge Capabilities (SKC)	10	.756
Human knowledge capabilities (HKC)	6	.711
Technical Knowledge Capabilities (TKC)	10	.893
(KMS)	3	.764

**Table 3. Skewness and Kurtosis of factors**

Variables	Skewness	Kurtosis
Cultural knowledge capabilities (CKC)	-.823-	.716
Structural knowledge capabilities (SKC)	-1.128-	3.687
Human knowledge capabilities (HKC)	-.798-	.722
Technical knowledge capabilities (TKC)	-1.097-	.909
(KMS)	.840	.511

#### 9.4. Factor Analysis

Factor analysis primarily aims to describe the covariance relationships existing among numerous variables in terms of factors. The factor model assumes the possibility of grouping variables based on their correlation coefficients. A strong correlation exists when all the variables in a certain group are associated with one

another and are related to other variables outside this group. By contrast, a weak correlation exists when each factor is represented by a different set of variables.

This study used exploratory factor analysis instead of component factor analysis, as the latter rotates factors common to the variables and excludes individual variations and differences in meaning. KMO and Bartlett's test were employed in this study to determine the overall quality of the model. Anti-imagining was used to determine the quality of each question. The degree of correlation could reach up to 1.00. The researcher selected values approaching 1.00. Orthogonal or varimax rotation was applied to the independent factors to arrive at zero degree of correlation among the factors.

Varimax analysis can aid in achieving the goal of this study, which is to present independent rankings of the factors and to define the psychological factors, as factor interpretation should be based on psychological logic. Through the analysis, four factors were identified as necessary to such psychological explanation and these factors were shown to have identical interpretation (Table 4).

**Table 4. Factor Analysis**

Latent Constructs	Items	Loadings
Cultural Knowledge Capabilities (CKC)	5	.804
		.643
		.863
		.606
		.641
Structural Knowledge Capabilities (SKC)	4	.715
		.535
		.637
		.744
Human knowledge capabilities (HKC)	5	.535
		.465
		.585
		.598
		.745

		.653
Technical knowledge capabilities (TKC)	9	.767
		.739
		.766
		.768
		.532
		.567
		.690
		.811
(KMS)	3	.583
		.921
		.689

Based on KMO and Bartlett's test of sphericity, the highest quality rating for the model was .643. The chi-square approximate was 40.863 ( $p < 0.001$ ,  $df = 10$ ), as shown in Tables 5 to 9.

Factor (CKC) Table 5. KMO and Bartlett's Test

.780		KMO
58.920	Chi-Square	Bartlett's test
10	df	
.001	Sig.	

Factor (SKC) Table 6. KMO and Bartlett's Test

.658		KMO
16.124	Chi-Square	Bartlett's test
6	df	
.013	Sig.	

Factor (HKC) Table 7. KMO and Bartlett's Test

.673		KMO
48.471	Chi-Square	Bartlett's test
10	df	
.001	Sig.	

Factor (TKC) Table 8. KMO and Bartlett's Test

.848		KMO
223.546	Chi-Square	Bartlett's test
36	df	
.001	Sig.	

Factor (KS) Table 9. KMO and Bartlett's Test

.648		KMO
40.863	Chi-Square	Bartlett's test
3	df	
.001	Sig.	

## 9.5. Regression

Regression analysis was adopted in the study, and the adjusted coefficient of determination (R average) was -.043, which served as basis for assessing the moral relationship between the dependent and independent variables. In other words, the contribution of the independent variables in explaining the change in the dependent variable can be derived using array deviations. The standard error was 0.714, as shown in Table 10.

Table 10. ANOVA

Sig.	F	Mean Square	df	Sum of Squares	Model
.001	.498	.356	4	1.422	Regression
		.714	45	32.124	Residual
			49	33.547	Total

Based on Table 11, the percentage of the link between the KS and the independent factors was 608. Squaring this value in terms of the effect of the combined factors yields an impact value of 369. The proportion link square adopted in disseminating the sample to the entire community was 394, implying that the independent factors affect the dependent variable.

**Table 11. Model summary**

Adjusted R Square	R	R Square	R	Model
-.043-		.042	.206	1

Moreover, based on their coefficients, a significant relationship was found between the dependent variable (i.e., KMS) and all the independent variables, except for CKC, which obtained significance and beta values of .968 and .007, respectively. The remaining values were statistically significant at  $p = 0.05$  (Table 12). Therefore, SKC, HKC, and TKC have significant effects on KMS.

**Table 12. Coefficient**

Sig.	t	Standardized Coefficients	Unstandardized Coefficients		Model	No
		Beta	Std. Error	B		
.023	2.347		1.133	2.659	KMS	
.968	.040	.007	.241	.010	CKC	1
.274	1.108	.200	.258	.285	SKC	2
.474	-.722-	-.124-	.277	-.200-	HKC	3
.474	-.721-	-.141-	.245	-.177-	TKC	4

## 10. CONCLUSION

This study examines the KM problem and its effects on the Knowledge process, in the context of universities staff. University must first appreciate and look forward to the enablers and barriers that affect KS as a whole to fully leverage their knowledge potential. The results show that all of these factors have significant positive effects on KMS. The research has made an important contributions in the fulfillment of the aim to increase the understanding of the importance of the effect of these factors on KMS among the staff in university. The research has demonstrated the positive effect of

factors such as Cultural and Technical factor among staff, human, and organizational structure on the success of KMS.

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