

Individual, Managerial and Collaborative Capabilities of Organizational Knowledge

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Abstract: Knowledge is a prime key source of sustainable competitive advantage for many organization as it is considered one of the most powerful affect the output of the organization. By supporting and empowering the knowledge works; knowledge flows smoothly to beat resistance to change, reflects in all business processes to achieve the goals, improves business performance, increase success rates and expands outputs quality. This research aims to exploit working knowledge when it's shared throughout the organization by examining the organizational knowledge capabilities illustrated by the core individual level factors (reputation, sociability, willingness and intention, employee adaptability and qualifications) managerial level roles (mentoring, facilitating, innovating, fostering, motivating, focusing, developing and dealing) and collaborative knowledge capabilities in the organization (culture, climate, structure, trust and collaboration incentives) levels to fulfill organizational objectives. This study contributes to the Knowledge Management (KM) literature by proposing a comprehensive measure of a structured model which contains three levels which influence knowledge organization application. The research tested and executed a deep data analysis of the proposed model using Structure Equation Modeling (SEM) technique. Research data was collected by distributing a questionnaire in several Arab companies in Middle East. Statistical analysis was performed using SPSS 21 and MVSOT application "EQS 6.3" to test the research hypotheses. The results showed a high level of influence of decision-makers' consideration of the knowledge capabilities on all organizational levels by giving more understanding of the factors' touching the success of the knowledge management strategy.

Key words: Knowledge organization, knowledge management, organization, capabilities, individual capabilities, collaboration, knowledge capabilities, structure equation modeling

INTRODUCTION

Knowledge Based View of the firm (KBV) examine the organization as an integrated set of numerous assets and capabilities and describes how organizations can obtain a new novel value as a derivatives of proper employment of these capabilities a and assets as stated by Chuang (2004), in addition; Youndt *et al.* (2014) predicted that the organization will be perceived as a locale of unremitting progress and a combination reservoir of every knowledge core asset such as human, physical and financial. In an attempt to improve the activities of the organization; an additional significant concern is about Knowledge Management (KM) as the fundamental and essential growth traits in organizations, implicating explicit and tenacious illustration of knowledge of individuals and groups in an organization as indicated by Hammami and Alkhalidi (2012). While Hislop (2003) emphasized that KM is a vital concern in human resource management in the organization with user involvement as one of the furthestmost essential targets.

Literature review

Knowledge organizational: According to many studies, knowledge must affect what is done, how it is done and how well it is done and it is seem to be as the energy which flows in all directions Alkhalidi and Olaimat 2006; 2008). Knowledge Organizational is perceived as the firm's inclusive business practices that emphasis on knowledge lifecycle; constructing, capturing, codifying/DE codifying, communicating and capitalizing (Zayyat *et al.*, 2010; Toledo *et al.*, 2016), building and maintaining both soft and hard fragments of knowledge infrastructure, relating and organizing structure and strategies with knowledge inventiveness (Baets, 1992). The integration of knowledge competences and information policies is vital and it has been pointed out clearly by Tseng (2014) and Breschi *et al.* (2003). They indicated that establishing a coherent connection between information technology and business strategy is the essential process to achieve the alignment and the spread integration across the organization. Abate

emphasis that it is critical to advance the success rates of knowledge work using information systems of the organization.

Organizational knowledge capability pillars: Urban (2015) suggested understanding culture is the core that guides technology and organizational infrastructures growth to achieve the success of the organizational strategies. These thoughts were also explained by Adenfelt and Lagerstrom (2006) as they pointed out that KM processes will be improved via a conducive organizational structures that depends on communications among stakeholders and knowledge sharing to create new knowledge. Organizational culture is characterized by many authors such as (Davy, 2006; Lucas, 2005; and Huotari and Iivonen, 2004) as common morals, ethics, beliefs and/or a sense embraced by individuals within an organization or its units and echoes the relationship models and principles that leads the conduct of its members. Moreover, Malhotra (2005), Gold and Malhotra (2001) argued that the traits of a conducive organizational culture embraces a thoughtful considerations of the worthiness of knowledge activities, management support across all decision points, the incentives to reward knowledge distribution and to encourage the interaction for the generation and deployment of knowledge. Table 1-3 attempted to summarizes most relevant previous works that address knowledge organizational capabilities (individual, managerial and collaborative) from the scope of this research.

Individual knowledge capabilities: Many researchers such as (Lucas, 2005; McLure-Wasko and Faraj, 2005; Bock *et al.* (2005); Davy (2006); Tena and Llusar, 2005;

Yang and Wan, 2004; Hsu (2006) has studied and pointed put a number of imperative personal and individual traits that are conducive to knowledge activities as all these features will support shaping the knowledge worker as all organizations seek to have knowledge workers Drucker (2001) (Table 1):

- Reputation: where the focus is on the role of individual good reputation of the knowledge provider and knowledge receiver in facilitating knowledge transferring activities between individuals
- Sociality: refers to the communications means that employees developed through interacting with colleagues and with internal consultants
- Willingness and intention to share knowledge which is defined as the ability and inclination of the individuals to unlock emotional and structural barriers to involve in knowledge activities
- Employee adaptability and integrity which is the feature that exists when employees are likely to familiarize with each other when they interact and also being ready to accept and adapt when receiving any information from the working environment and integrate with any change in organizational rules
- Employee qualifications which is seen as self-education, continuous and accumulated learning from business lessons, knowledge internalization, in addition to computer literacy

Managerial knowledge capabilities: Similar to the previous individual traits, the researchers also demonstrate another pillars that knowledge organizational should focus one and enrich to insure a successful embracing of the knowledge organizational managerial traits (Table 2):

Table 1: Individual Knowledge Capabilities (IKC)

Variables	Researchers
Reputation	Lucas (2005), McLure-Wasko and Faraj (2005), Bock <i>et al.</i> (2005), Davy (2006), Escrig and Llusar (2005)
Sociability	Lucas (2005), McLure-Wasko and Faraj (2005), Bock <i>et al.</i> (2005), Harris and Nelson (2008), Yang and Wan (2004)
Willingness and Intention	Bock <i>et al.</i> (2005), Yang and Wan (2004), Hsu (2006)
Employee commitment adaptability and Integrity	Becerra-Fernandez <i>et al.</i> (2004), Gottschalk (2005), McLure-Wasko and Faraj (2005)
Employee qualifications	Tena and Llusar (2005), Liao (2005), Lucas (2005), Gottschalk (2005), Yang and Wan (2004)

Table 2: Managerial Knowledge Capabilities (MKC)

Variables	Researchers
Mentor	Yang (2007), Yang and Wan (2004), Gottschalk (2005)
Facilitator	Yang (2007), Gottschalk (2005), Yang and Wan (2004)
Innovator	Yang (2007), Johannessen <i>et al.</i> (2001), Tena and Llusar (2005), Malhotra (2005)
Fosterer	Quinn and McGrath (1985), Von-Krogh (1998), Yang and Wan (2004), Adenfelt and Lagerstrom (2006), Yang (2007)
Motivator	Quinn and McGrath (1985), Yang and Wan (2004), Gottschalk (2005)
Learning advocate	Johannessen <i>et al.</i> (2001), Cummings and Teng (2003), Yang and Wan (2004), Hsu (2006)
Developer	Johannessen <i>et al.</i> (2001), Von-Krogh <i>et al.</i> (2001), Janev and Vranes (2005), Gottschalk (2005), Yang (2007)
Dealer	Yang (2007), Malhotra (2005), Gottschalk (2005)

Table 3: Collaborative Knowledge Capabilities (CKC)

Variables	Researchers
Organizational culture	Lucas (2005), Huotari and Iivonen (2004), Tena and Llusar (2005), Malhotra (2005); Becerra-Fernandez <i>et al.</i> (2004), Subramaniam and Youndt (2005), Davy (2006), Yang (2007)
Organizational climate	Bock <i>et al.</i> (2005) and Nomura (2002), Gottschalk (2005), Hsu (2006), Davy (2006), Yang (2007)
Organizational structure	Becerra-Fernandez <i>et al.</i> (2004), Yang and Wan (2004), Subramaniam and Youndt (2005), Gottschalk (2005), Adenfelt and Lagerstrom (2006), Yang (2007)
Trust	Huotari and Iivonen (2004), Aryee <i>et al.</i> (2002), Culbert and McDonough (1986)
Incentives	Cummings and Teng (2003), Yang and Wan (2004), Malhotra (2005), Subramaniam and Youndt (2005), Hsu (2006), Yang (2007)

- **Mentor:** are the actions that plays a vital role in facilitating and coaching as a leadership style. They also propose apprentice activities that allow senior members to assist subordinates and novice staff?
- **Facilitator:** are effective leaders who plays both mentoring roles aiming to promote social communications and exchange of ideas?
- **Innovator:** are the ones who examine the external surroundings and captivate information and knowledge and exemplify it as promptly as possible to the competitive benefits of the organization?
- **Fosterer:** which means that operative leaders are aiming to foster social interactions between their employees by have senior employees to assist juniors?
- **Motivator:** here leader plays a high important role by motivating senior employees to share their understanding of works and capability with other staff
- **Focuser (learning advocate):** this is one of the most important roles of the leader which is focusing a principle of endless learning between employees to build the organizational knowledge
- **Developer:** leader should direct the process of knowledge development strategies and develop it as looked-for alignment with business strategy and defining knowledge resources
- **Dealer:** as the leader should deal and manage any change that affects the organization wisely to keep it on the track

Collaborative knowledge capabilities: Such as such the previous individual and managerial traits, researchers **also** investigate a more thrilling pillar have most researchers consider it the most fundamental and pivotal factor in supporting and facilitating the organizational attempt to practice knowledge initiatives (Table 3).

Organizational culture was described by Quinn and McGrath (1985) as indicated earlier as a mutual collective moral, principles, values and/or views believed by individuals across organization or its divisions. Organizational culture echoes the models and principles which leads the conduct of its affiliates. Traits of an

empowering organizational culture including the appreciating of the worthiness of knowledge activities, management support across all decision points, the incentives to reward knowledge distribution and to encourage the interaction for the generation and deployment of knowledge.

Organizational climate: Which has an essential factor by preparing and fostering the organizational climate to share knowledge and enhancing the collaborative climate as described by Bock *et al.* (2005) and Nomura (2002).

Organizational structure: Both the logical (decisions levels) and physical structure (building spaces and architecture) of the organization control and direct the nature and the frequently individuals interact and consequently revel the likelihood of knowledge sharing behaviors. Both structures can facilitate knowledge core activities across communities of practice. It can enable knowledge through designated structures and roles that precisely designed to support knowledge works. As indicated by Lichtarski, structural knowledge can be seen as a resource to assess the degree in which the organization depends on the connections between employees, the prominence of knowledge works and creation of new; novel and converted knowledge. Thus, this measure reflects the capability of structural knowledge within the organizations.

Trust: This capability improves the performance of teams and organization making effective influence on knowledge sharing activities in the organization Ipe (2003), so the work outcomes will simply enriched Aryee *et al.* (2002), in addition; accordingly trust should exist between employees themselves and between employees and management from one side and with organization from the other side as in Tan and Tan (2000), therefore all policies and rules would be effortlessly acceptable, applicable and the organization will be empowered Culbert and McDonough (1986).

Incentives for collaboration: Obtainable incentives that reward knowledge sharing is essential and vital to flourish this culture and encourage the interaction between

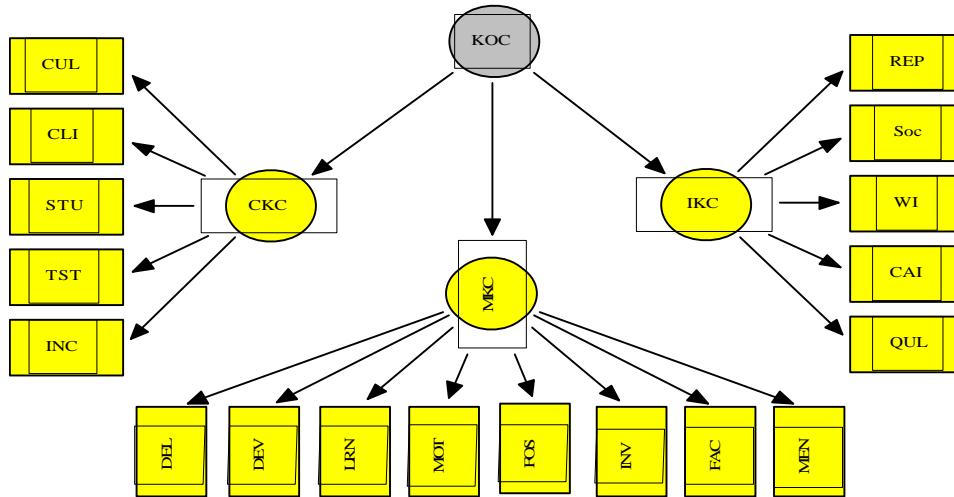


Fig. 1: Proposed Organizational Knowledge Capabilities Model (OKC) as an output of EQS 6.3

employees the creation and sharing of knowledge by enhancing the collaboration process within the organization.

Research model: The research model illustrates the proposed belonging relationship between the organizational knowledge capabilities and its proposed pillars (individual, managerial and collaborative), each pillar consisted of many traits as explained in the previous section (Fig. 1).

Research hypotheses: The researchers introduce the following hypotheses according to literature and proposed model by the researchers:

- H₁: research main hypothesis
- H_{1a}: there is a positive significant belonging relationship between knowledge organizational capabilities and individual capabilities
- H_{1b}: there is a positive significant belonging relationship between knowledge organizational capabilities and managerial capabilities
- H_{1c}: there is a positive significant belonging relationship between knowledge organizational capabilities and collaborative capabilities
- H₂: all individual traits are significantly explaining the individual capabilities
- H₃: all managerial traits are significantly explaining the managerial capabilities
- H₄: all collaborative traits are significantly explaining the collaborative capabilities

Table 4: Normality results of Individual Knowledge Capability (IKC)

	Reputation REP	Sociability SOC	Willingness WI	Adaptability CAI	Qualifications QUL
Variables	V1	V2	V3	V4	V5
Mean	3.53	3.33	3.32	3.58	3.39
Skewness	-0.55	-0.42	-0.48	-0.60	-0.65
Kurtosis	-0.07	-0.25	-0.45	0.24	-0.40
SD	0.94	0.99	1.02	0.87	1.07

MATERIALS AND METHODS

Research sample and model validity: Data was gathered to examine the hypothesized model of the research through a survey questionnaire which was adopted to collect the required data for the research which included 179 valid respondents representing several organizations in private organizations in Arab countries in the Middle East. The researchers checked model validity three validity measures: content validity, convergent validity and discriminate validity.

Normality: The normality is used to assess the value of the data distributions that matches up with the bell shaped normal distribution, the values of kurtosis skewness and standard deviation are deemed to be the determinate indicators of data normality. For skewness value it indicates the symmetry of the distribution where kurtosis value is to measure the flatness and peaked of the sample data with reference to a bell shaped normal distribution, both values has to be <1 while standard deviation must not exceed three SD values. Table 4, 5 and 6 show the results and it can be asserted that the sample meets the normality requirements.

Table 5: Normality results of Managerial Knowledge Capability (MKC)

	Mentor MEN	Facilitator FAC	Innovator INV	Fosterer FOS	Motivator MOT	Focuser FOC	Developer DEV	Dealer DEL
Variables	V1	V2	V3	V4	V5	V6	V7	V8
Mean	3.23	3.19	3.25	3.26	3.72	3.57	3.02	3.34
Skewness	-0.27	-0.34	-0.31	-0.23	-0.93	-0.91	-0.10	-0.54
Kurtosis	-0.61	-0.41	-0.56	-0.57	0.93	0.37	-0.59	-0.41
SD	1.05	1.02	1.01	1.00	0.86	0.99	1.06	0.96

Table 6: Normality results of Collaborative Knowledge Capability (CKC)

	Culture CUL	Climate CLI	Structure STU	Trust TST	Incentives for collaboration INC
Variables	V1	V2	V3	V4	V5
Mean	3.16	3.23	3.16	3.23	2.77
Skewness	-0.27	-0.40	-0.49	-0.24	0.11
Kurtosis	-0.46	-0.52	-0.71	-0.64	-0.86
SD	0.91	0.96	0.99	1.00	1.17

Table 7: Explanatory factor analysis results for IKC, MKC and CKC

Dimensions/Factors	KMO*	Loading value	TVE** (%)	Cronbach's alpha
IKC (Individual Knowledge Capability)				
Reputation (REP)	0.69	0.829	54.98	0.79
Sociability (SOC)		0.804		
Willingness (WI)		0.741		
Adaptability (CAI)		0.676		
Qualifications (QUL)		0.641		
MKC (Managerial Knowledge Capability)				
Innovator (INV)	0.90	0.866	60.75	0.89
Mentor (MEN)		0.842		
Fosterer (FOS)		0.801		
Developer (DEV)		0.756		
Dealer (DEL)		0.751		
Focuser (FOC)		0.733		
Facilitator (FAC)		0.748		
CKC (Collaborative Knowledge Capability)				
Structure (STU)	0.81	0.807	55.26	0.79
Climate (CLI)		0.767		
Culture (CUL)		0.765		
Trust (TST)		0.712		
Incentives (INC)		0.656		

*Kaiser-Meyer-Olkin Measure of Sampling Adequacy. **Total variance explained

The proposed model was analyzed using explanatory factor analysis in SPSS. The results showed one factor solution for all OKC pillars with a strong correlation scores loadings and all were accepted indicators as shown in Table 2.

Data analysis using Explanatory Factor Analysis (EFA):

The proposed model was analyzed using explanatory factor analysis using SPSS. The results of factor analysis process are showed in Table 7. The proposed model was analyzed using explanatory factor analysis using SPSS. The results show one dimension as proposed by researchers for IKC (Individual Knowledge Capability).

In addition, the results show two dimensions for MKC (Managerial Knowledge Capability), the first one contains seven factors (Innovator (INV), Mentor (MEN),

Table 8: Explanatory Factor Analysis Results

Items	KMO*	Loading value	TVE**	Cronbach's alpha
IKC (Individual Knowledge Capability)	0.730	0.861	76.70	0.85
MKC (Managerial Knowledge Capability)	0.892			
CKC (Collaborative Knowledge Capability)	0.874			

*Kaiser-Meyer-Olkin Measure of Sampling Adequacy. **Total variance explained

Table 9: Model fit indicators

Fit indicators	Model values	Accepted values (benchmark)
χ^2	158.45	-
Probability (P)	0.00059	>0.03
Bentler-Bonnet Normed Fit Index (NFI)	0.91	>0.90
Comparative Fit Index (CFI)	0.97	>0.90
Goodness of Fit Index (GFI)	0.91	>0.90
Root Mean-Square Error (RMSEA)	0.054	>0.05
Model Cronbach's Alpha ($\hat{\alpha}$)	0.92	>0.50

Fosterer (FOS), Developer (DEV), Dealer (DEL), Focuser (FOC), Facilitator (FAC)) and the other one contains just one factor which is Motivator (MOT) so it was dropped. Moreover, the results show one dimension for CKC (Collaborative Knowledge Capability) as proposed by researchers.

The researchers excluded the managerial role of motivation (MOT) as it made a very poor loading (0.048) to latent factor MKC from the analysis later in the second round of factor analysis (dimension reduction) (Table 8).

Structural model: The proposed model was analyzed using Structural Equation Modeling techniques (SEM) to investigate the projected belonging relationship among the model factors (latent and measured) using MVSOT application “EQS 6.3”. Figure 2 and Table 9 for the results.

RESULTS AND DISCUSSION

As shown in Table 9, all fit measurement indicators prove that the hypothesized model is accepted and thus, the model was adopted for hypothesis testing of this research. All fit indices except Chi-square (χ^2) indicate that the model has a good fit and the data is sufficient to test the hypotheses. However, the χ^2 statistic is very sensitive to sample size and is no longer relied upon as a

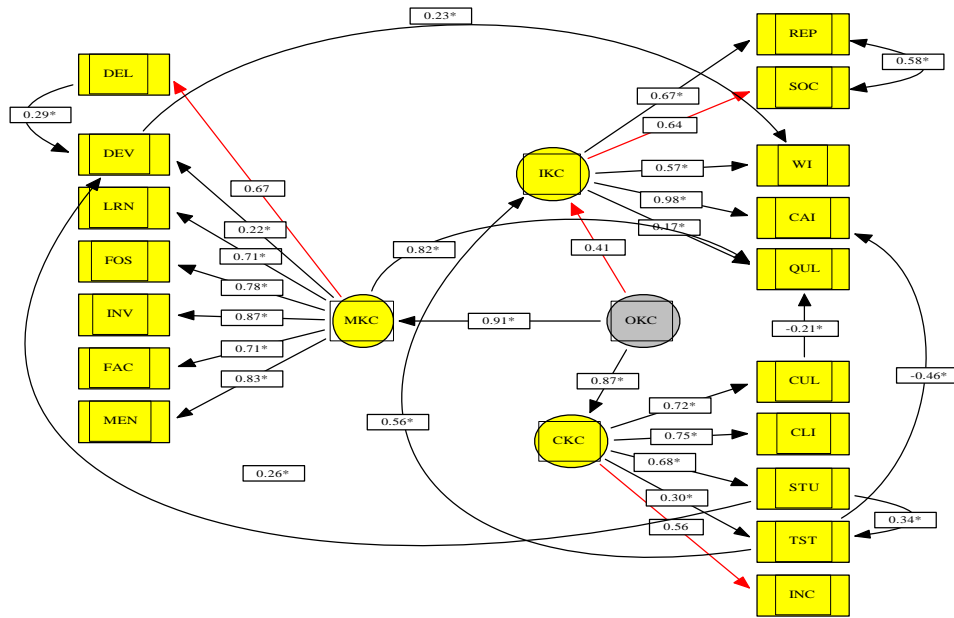


Fig. 2: Structural model results of Organizational Knowledge Capabilities (OKC) using EQS 6.3

Table 10: Model measurement

Belonging relationship path	Standardized beta (β)	t-statistics	R ²	Significance @ 0.05
OKC = f (IKC)	0.410*	5.565	0.693	v
OKC = f (MKC)	0.913*	3.393	0.833	v
OKC = f (CKC)	0.869*	3.728	0.756	v

*All Standardized Beta (β) values are accepted at 0.05 significance level

basis for acceptance or rejection (Schlrmelleh-Engel *et al.*, 2003, Vandenberg, 2006). Therefore, the value of χ^2 statistic was reported and not considered as explained. Consequently, the use of several fit indexes has been used to provide a further all-inclusive interpretation of model fitness, considering model complexity, sample size and other significant issues of the study.

Hypotheses testing: Coefficient of determination (R²) was used to test the hypotheses of the proposed model where R² reflect the size effect of the full structural model. Standardized coefficients (beta) used to thoroughly examined the scale of the impact, a weak belonging relationship is indicated as beta moves closer to zero while strong if the opposite. The results are shown in Table 10.

OKC measurement model arguments the significant belonging relationship between OKC and its pillars (IKC, MKC and CKC) as indicated by the research. Testing results of the significant belonging relationships between the latent factor OKC and the three independent factors show a clear significant positive belonging relationship does exist. It can be noted from Table 10 that t-statistics are significant at 0.05 for all relations, so this indicates

Table 11: Statistical results of OKC measurement model

Hypothesis	Dimension	Result @ 0.05
H ₁	OKC	Accepted
H _{1,1}	IKC	Accepted
H _{1,2}	MKC	Accepted
H _{1,3}	CKC	Accepted
H ₂	IKC traits	Accepted
H ₃	MKC traits	Accepted
H ₄	CKC traits	Accepted

*All hypotheses are accepted at 0.05 significance level

that all belonging relationships for representative pillars of OKC are accepted. Also it can be concluded that the “MKC” factor has the highest impact on OKC with a beta value of 0.913 (R² = 0.833) followed by CKC with a beta value of 0.869 (R² = 0.756) and IKC has the least impact with a beta value of 0.410 (R² = 0.693).

As all results are accepted and have positive significant belonging relationship so it can be concluded that all hypotheses are accepted as shown in Table 11.

The results also suggested a new insight as in the modified study model (Fig. 2) about significant relationships that are not proposed by the study model;

- Positive significant effect relationship, between MKC (DEV) and IKC (WI)
- Positive significant loading relationship, between MKC and IKC (WI)
- Positive significant effect relationship, between CKC (STR) and MKC (DEV)
- Positive significant loading relationship, between IKC and CKC (TST)

- Positive significant effect relationship, between IKC (CAL) and CKC (TST)
- Positive significant effect relationship, between STU and TST of the CKC traits
- Positive correlation between REP and SOC of the IKC traits

The researchers suggest to consider and investigate the above new findings in future and further studies.

CONCLUSION

The findings indicate a positive significant fitting relationships between Organizational Knowledge Capabilities (OKC) and Individual Knowledge Capabilities (IKC), Managerial Knowledge Capabilities (MKC) and Collaborative Knowledge Capabilities (CKC). Each of which has its own proposed sub-factors. Individual Knowledge Capabilities (IKC) includes (reputation, sociability, willingness and intention, employee adaptability and qualifications) while Managerial Knowledge Capabilities (MKC) consists of (mentoring, facilitating, innovating, fostering, motivating, focusing, developing and dealing) whereas Collaborative Knowledge Capabilities (CKC) embraces (culture, climate, structure, trust and collaboration incentives) which fits with Hammami and Alkhaldi (2012).

All results imply that there is a significant relation between all sub-factors and its main pillar except the motivation role sub-factor of the manager in the studied environment which indicates the more should be done in this regard and this satisfy with Theriouet *et al.* (2011), Hammami and Alkhaldi (2012). Moreover as the least value of relation was for the Individual Knowledge Capabilities (IKC) which gives an impression that lot of work should be done regarding this issue to get employees more qualified and ready to share knowledge and gain more needed output from knowledge sharing. This finding validates Nonaka (1994), Janev and Vranes (2005) and Nonaka and Takeuchi (1995) argument who stated that knowledge management can maximize performance of the organization.

LIMITATIONS

The findings of this research is limited to the organizations within the scope of this study in a limited time-frame, so all researchers are encouraged to validate the proposed model in other environments as this add more comprehensive understanding of the knowledge aspect in the organization as it is considered a main dynamic factor which influences the productivity of it.

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