

# The Impact of Knowledge Sharing on Innovation Capability in United Arab Emirates Organizations

S. Abdallah, A. Khalil, and A. Divine

**Abstract**—The purpose of this study was to explore the relationship between knowledge sharing and innovation capability, by examining the influence of individual, organizational and technological factors on knowledge sharing. The research is based on a survey of 103 employees from different organizations in the United Arab Emirates. The study is based on a model and a questionnaire that was previously tested by Lin [1]. Thus, the study aims at examining the validity of that model in UAE context. The results of the research show varying degrees of correlation between the different variables, with ICT use having the strongest relationship with the innovation capabilities of organizations. The study also revealed little evidence of knowledge collecting and knowledge sharing among UAE employees.

**Keywords**—Knowledge sharing, Organization Innovation, Technology Use, Innovation Capabilities.

## I. INTRODUCTION

NOWADAYS, all organizations regard knowledge as a valuable asset to their survival, continuous improvement and success. Knowledge sharing occurs both at the individual and organizational level. Knowledge sharing can be defined as a social interaction culture, involving the exchange of employee knowledge, experiences, and skills throughout the department or organization, [1]. According to [2], the sum of knowledge acquired internally and externally constitutes a sustainable resource for maintaining competitive advantage. Knowledge sharing creates opportunities to maximize organization ability to meet those needs and generate solutions and efficiencies that provide a business with a competitive advantage [3]. A number of studies have demonstrated that knowledge sharing is essential because it enables organizations to enhance innovation performance and reduce redundant learning efforts [4]. Thus to evaluate this premise, this research is an attempt to investigate knowledge sharing as an enabler of organizations' innovation capability. In other words, the study will examine the effects of individual, organizational and technological factors and whether they correlate with innovation capability.

S. Abdallah is with the College of Business Administration, Abu Dhabi University, P.O Box 1790, Al Ain, United Arab Emirates (e-mail: salam.abdallah@adu.ac.ae).

A. Khalil is with the College of Engineering and Computer Sciences, Abu Dhabi University, P.O Box 1790, Al Ain, United Arab Emirates (e-mail: ashraf.khalil@adu.ac.ae).

A. Divine is with the College of Business Administration, Abu Dhabi University, P.O Box 1790, Al Ain, United Arab Emirates (e-mail: awah.divine@adu.ac.ae).

The research is a work in progress, thus only preliminary results are discussed. The study explores the following research objectives:

1. What factors contribute to knowledge sharing in an organization?
2. What motivates employees and management to share knowledge in organizations?
3. Does sharing knowledge increase the innovative capability of a company?

## II. BACKGROUND

Different researchers have published varied views as to what knowledge sharing is all about and on what motivate employees in an organization to share knowledge. According to [5], individual motivators may enable employee willingness to share knowledge. According to their research, people contribute to knowledge when they perceive that it enhances their professional reputation and when they have the experience to share. Thus employees are willing to share knowledge when they think that it is worth the effort to help others with knowledge. Other researchers are of the view that an organizational culture also enables knowledge sharing such as reward systems linked to knowledge [6] and open leadership climate [7]. Bartol and Srivastava [6] argue that successful sharing of knowledge requires enablers in the form of information technology infrastructure and a reward system that encourages knowledge sharing activities.

Moreover, considering that the transfer of knowledge from one person to another creates new knowledge, some researchers such as [8], regard knowledge sharing as the process whereby employees mutually exchange knowledge and jointly create new knowledge. Knowledge sharing is the supply and demand for new knowledge.

The shared knowledge in an organization between employees often at times assists in shaping the way things are done. If such knowledge is shared, adopted and successfully used in the organization as a new idea, process, service or product, this leads to innovation. According to Damanpour [9], innovation is the adoption of an idea or behavior that is new to the organization. This can either be a service, a new product, new technology or a new administrative practice. Innovative firms are more flexible and can adapt to a changing environment.

This study is specifically interested in knowledge sharing enablers, which it categorizes into individual, organizational and technological factors, and their relationship to the innovative capability of a firm through the knowledge sharing process, i.e knowledge donating and knowledge collecting.

### III. RESEARCH METHOD

This research is quantitative in nature and is based on a questionnaire developed and used by Lin [1] in the context of organizations in Taiwan. The questionnaire contains items on individual, organizational and technological factors as well as on the knowledge sharing process, with the aim of testing their effect on a firm's innovative capability.

We aimed to test the validity of Lin's [1] study by conducting the same questionnaire in the context of the Middle East. Data was collected from employees from several organizations located in Al Ain (United Arab Emirates). Questionnaires were distributed as hard copies, and 103 completed copies were collected and analyzed. The survey questions are based on a Likert scale of 5 (1=strongly disagree and 5=strongly agree) in order to rate the impact of individual, organizational and Information Communication Technology factors on the knowledge sharing process and ultimately on the innovative capability of firms.

In addition, data related to demographics of the respondents, in terms of their age group, education, experience and position, were collected (see Table I). For the purpose of this study only factor analysis and correlation were used in the data analysis to determine if any relationship exists between different variables of the model shown in Fig. 1.

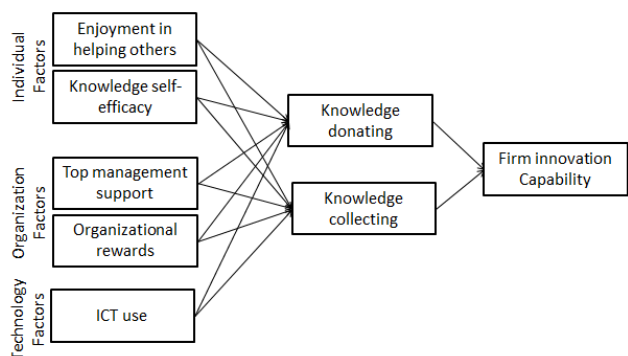


Fig. 1 Research Model (Lin, 2007)

### IV. ANALYSIS AND DISCUSSIONS

The analysis was carried out using SPSS version 19. We started with 33 question items measuring eight variables as depicted in Fig. 1. The Kaiser-Mayer Olkin (KMO) test was carried out to test the sufficiency of the data collected from a sample [10]. The KMO value of the data was found to be 0.78, which is within the acceptable range of values above 0.50 [11]. Bartlett's Test of Sphericity was considered, to see if the data originated from populations with equal variances, and the result is significant ( $\chi^2 = 1631.548$ ;  $df = 351$ ;  $p < 0.05$ ), indicating the data is valid for further analysis.

All the 33 items were loaded for analysis, and factor analysis was carried out, removing all items that had small coefficients below 0.5 and also used the varimax technique of orthogonal rotation. The analysis produced seven factors, and most of the items loaded as expected under their respective variables. However, the items related to the variable

“Knowledge self-efficacy” did not load well and was therefore removed. In addition, one item from “Knowledge Donation” and one item from “Firm Innovation Capability” variables were removed. Reliability or internal consistency was carried out for each factor using Cronbach's alpha. Most of the factors according to Cronbach's alpha were acceptable since they were above the recommend range of 0.7 [12], [12]. Only “Knowledge Donating” had a value of 0.516, therefore it was decided to exclude that variable from further analysis. Table II lists all factors with their corresponding Cronbach's alpha score. The accumulated variance explained for the six factors was calculated at 73%.

TABLE I  
 DEMOGRAPHICS OF PARTICIPANTS

		Frequency	Percent
Gender	Male	47	46.1
	Female	53	52.0
Age	21-25	23	22.5
	26-30	35	34.3
	31-35	26	25.5
	36-40	8	7.8
	Over 40	8	7.8
Education	High School	16	15.7
	Bachelor	61	59.8
	Masters	22	21.6
Job	Managers	15	14.7
	Staff	48	47.1
Experience	0-3	29	28.4
	3-5	20	19.6
	6-10	30	29.4
	11-15	12	11.8
	Over 15	9	8.8
	Industry	Education	27
Banking / Insurance		26	25.5
Computers / Communication		4	3.9
Health / Foods		18	17.6
Utility		13	12.7
Others		12	11.8

The next step of the analysis was to take the items under each factor and calculate the overall means for each of the six factors or variables. Later, correlation analysis was conducted to test the correlation between the different variables. Table III shows the results of the analysis.

The analysis above shows some positive and moderate relationships between the variables. Enjoyment in Sharing Knowledge has a moderate relationship with Knowledge Collecting, and ICT Use and a weak relationship with “Firm Innovation Capability”. There is also evidence of weak relationship between Organizational Reward and ICT use. Management Support has moderate relationships with ICT

Use, Knowledge Collecting and Firm Innovation Capability. ICT Use also correlates strongly with Firm Innovation Capability, but there is a weak relationship between Knowledge Collecting and Firm Innovation Capability.

Reflecting on the model depicted in Fig. 1, Knowledge Collecting has a direct relationship with only two variables, Enjoyment in Sharing Knowledge and Management Support. This relation is supported, as it tells us that employees enjoy helping others by Knowledge Collecting. Employees are therefore willing to share their knowledge with other employees because they enjoy doing so, which might also require management support.

The correlation matrix shows there exists a stronger relationship between several variables and Firm Innovation Capability and without the mediating variable "Knowledge Collecting". It is worthy to note again that Knowledge Donating was dropped from the analysis because it had a weak loading during the factor analysis phase. So it seems there is a better relationship between Firm Innovation Capability and Enjoyment in Sharing Knowledge, Management Support, and ICT Use.

It is interesting to note that the strongest relationship exists between ICT Use and Firm Innovation Capability and ICT Use and Management Support. It seems that ICT is a key enabler of innovation within organizations. Efforts by management to create a conducive atmosphere founded on ICT will see improvement in their innovation capabilities.

The overall analysis might be suggesting that the surveyed individuals have little concern for collecting and donating knowledge, although they recognize the importance of firm innovation capabilities. This might be due to organizational cultural issues, which does not foster effective knowledge management strategies or might be a weakness in the model itself.

The next phase of this study is to take a larger sample and to account for control variables such as nationalities, gender,

TABLE II  
ROTATED COMPONENT MATRIX

Items	Component						Cronbach's alpha
	Enjoyment in Helping Others	Organizational Reward	Top management Support	ICT Use	Knowledge Collecting	Firm Innovation Capability	
EJ3	.893						0.9
EJ1	.836						
EJ2	.796						
EJ4	.742						
RW1		.891					0.89
RW2		.844					
RW3		.820					
RW4		.815					
MS3			.809				0.86

MS4	.803				
MS2	.799				
MS1	.698				
TU2	.723				0.74
TU3	.714				
TU4	.647				
TU1	.610				
KC2	.838				0.82
KC1	.791				
KC4	.707				
KC3	.706				
FI4		.816			0.77
FI3		.704			
FI6		.592			
FI1		.550			
FI2		.550			

TABLE III  
CORRELATION MATRIX

	Enjoyment	Reward	Management Support	ICT Use	Knowledge Collecting
Reward	-.076				
Management	0.38*	.250			
ICT Use	0.36*	0.29*	0.43*		
Knowledge	0.40*	.041	0.35*	.212	
Firm	0.27*	.112	0.33*	0.43*	0.29*

\*\*. Correlation is significant at the 0.01 level (2-tailed) experience and education level which might have a direct relation with knowledge sharing and innovation capability.

## V. CONCLUSION

Knowledge sharing in any organization is very important as this is the basis upon which ideas and processes are being implemented and that help management in decision making. An understanding of these knowledge sharing enablers will help organizations capitalize on them, to positively influence their innovation capability.

In this study, within the UAE context, the relationship between the variables in the proposed model (Lin, 2007) and specifically knowledge collecting and donating had either weak or no significant importance at least to the individuals that were surveyed. Use of ICT had the strongest relationship that may enhance innovation capabilities of firms. Further investigation is required to examine the factors that prohibit knowledge collecting and sharing within UAE organizations.

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**Salam Abdallah** is an IS&T academic and practitioner. Dr. Abdallah has a PhD in Information Systems from Australia and an MSc degree from United Kingdom. He has over 15 years of experience working as an IT consultant before joining United Nations Relief and Works Agency for Palestine refugees overseeing ICT facilities and curriculum development at schools and vocational training centers in UNRWA's entire field of operations. He is a founder member of Special Interest Group of the Association of Information Systems: ICT and Global Development. Dr. Abdallah is also an active researcher in the field of Information Systems and has published articles in local and international conferences and journals. Currently he is an associate professor of management information systems at Abu Dhabi University.

**Ashraf Khalil** is an Assistant Professor at Abu Dhabi University, United Arab Emirates and a Usability Consultant. His research interests are pervasive computing, social and mobile computing, persuasive computing, human computer interaction and privacy. The results of his research studies are published in the top conferences in the field such as CHI, CSCW, and INTERACT. His work has also been featured in public media including the UAE's The National, the USA's National Public Radio, and Slashdot. Since he moved to the UAE in 2006, he is an active member of the Gulf community of academicians. During his research career, Dr. Khalil has accumulated vast knowledge in applying and developing usability testing techniques to mobile applications. He is interested in applying all the technological innovations in addressing pertinent problems. He believes technology should not be confined to the work environment but should be woven into every aspect of our daily lives.