

Effect of Knowledge Management (Knowledge Development, Knowledge Sharing, and Learning Access) on Organizational Innovation: An Empirical Study in the UAE

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Abstract

It has been observed that innovation in governance leads to many positive results. Firstly, it helps in better utilization of resources and capacities and promotes a more open culture in the government which leads to good governance. Secondly, it creates a better image of the government which builds trust amongst its citizens. Another major advantage of innovation is that it has a domino effect wherein a successful innovation in one sector opens the doors for innovation in other sectors. One successful innovation leads to a series of innovations which leads to a favourable environment. The main objective of this study is to examine the impact of knowledge management in term of knowledge development, knowledge sharing, and access learning on the organizational innovation within the public sector in the United Arab Emirates. This study has adopted questionnaires to collect data. PLS (Partial Least Squares) SEM-VB (Structural Equation Modelling-Variance Based) was employed to assess the research model by utilizing the software SmartPLS 3.0. Results reveals that knowledge management have a significant impact on the organizational innovation. Variance explained by this study was 32%. The results of the current study have the potential to give further insights into innovation of organizations strategies.

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I. INTRODUCTION

The idea of innovation is to seek opportunities in order to capitalize them to gain a competitive edge (Schumpeter & Elliott, 1934). The opportunity seeking and advantage seeking behaviours are the practical form of innovation (Tidd & Bessant, 2014). The better understanding of knowledge allows an individual or organization to come up with better innovative ideas (Dewar & Dutton, 1986). The innovative ideas also need to practically survive and prosper in their environment as external environment of any organization is not static. The concept of innovation evolves therefore it has a better chance of survival in an external environment. Several studies show that the organizations that are capable of implementing innovative ideas are the most successful ones in the business (Calantone, Cavusgil, & Zhao, 2002).

The innovative culture of the whole organization is very important as some organizations simply do not identify opportunities while others fail to capitalize those opportunities (SKerlavaja, Dimovskia, Mrvarb, & Pahora, 2010).

Simpson, Siguaw, & Enz (2006) suggests that continuous innovation can increase sustainability of a firm. The implementation of innovation within an organization is a difficult task as the whole organization needs to share same beliefs. It is important for an organization to first understand the concept of innovation before implementing it (Dombrowski et al., 2007), an innovative culture is the base

of success of any firm or organization (Hamel, 1999). The organizations that are innovative have different properties than the ones that are less innovative (Subramanian & Nilakanta, 1996). Communication and

collaboration are two of the most important components in an innovative workplace. It is imperative that the organization acquires services of talented individuals who can help the organization to gain a competitive edge. The collaborative innovation is important for any organization as it helps the employees to work with each other (De Long & Fahey, 2000). The collaboration helps the employees to capitalize on opportunities. The organization also needs to reward employees on their innovative work.

The research conducted by Easterby-Smith, Araujo, & Burgoyne (1999) pointed on the role of learning in the process of innovation along with identification of various levels on which a empirical investigation can be developed. While the relationship between the organization's learning & performance of innovation has been subject to conceptual evaluation in the literature concerning organizational innovation and learning, little or negligible research evidence was found with the phenomenon largely being under-examined (Bontis, 2002; Pérez López, Manuel Montes Peón, & José Vazquez Ordás, 2006; Saru, 2007). In addition, a limitation was observed in terms of the factor knowledge management and their effect on innovation at various levels. Therefore, the main problem statement for this research study is "To identify the factors or challenges which affect innovation in UAE Government sector".

II. LITERATURE REVIEW

A. Knowledge Management (KM)

In a broad sense, knowledge management is a business concept, which includes concerted, coordinated, and deliberate efforts to manage the organization's knowledge through the processes of creating, structuring, disseminating and applying it to enhance organizational performance and create value. The knowledge management strategy of an organization is predicated on shared learning, collaboration, and the sharing of knowledge (Holsapple & Singh, 2001; Liebowitz, 1999; Nonaka & Takeuchi, 1995; Quinn, Anderson, & Finkelstein, 1996; Rhodes, 1996).

An organization's knowledge is only as useful as its ability to be enhanced (Carneiro, 2000). Moreover, knowledge can increase in value over time (Carneiro, 2000) and the advantages that are brought forth by human capital can decrease over time as well (Cabrales, Pérez-Luño, & Valle, 2009). Working through innovation processes requires the harnessing of new acquired knowledge regarding the sub-processes put in place (Nonaka & Takeuchi, 1995). This means that incubating knowledge is an important factor to create innovative ideas and demonstrating them through a specific project. Knowledge-based absorptive capacity can point out the extent to which an enterprise can nurture this innovation. Public finance aims to enable increasing economic growth and to end poverty, however, the corruption, reduces revenue and it increases illegal

public expenditure. More and more countries have focused on the use of ICT in its activities to strengthen its reform process with transparency as a necessary ingredient of good financial governance (Ameen & Ahmad, 2011, 2013a, 2017; Baharuden, Isaac, & Ameen, 2019).

Knowledge management empirically connected to incremental as well as radical innovation (Darroch, 2005; Darroch & McNaughton, 2002). Awareness of an enterprise's human capital as well as providing opportunities for employees for sharing of information as well as communication are termed as key necessities that facilitate the management of knowledge (Prajogo & Ahmed, 2006). Some of the practices for knowledge-based human resources that encourage innovation can include appraisal and compensation practices (Cabrales et al., 2009), as well as providing new sources of knowledge and incentives that create new knowledge both in external as well as internal habitats (Mumford, 2000) fall under the scope of people management. In most contemporary organizations, adopting technology is not only uses ICT to fill up some forms and records but rather it is also a tool that performs the process of identification, accumulation, analysis, measurement, preparation, interpretation and communication of the information used by management to plan (Ameen & Ahmad, 2011, 2013b, 2014; Ameen et al., 2019). It is used in evaluating and controlling within an organization and to assure appropriate use and accountability for their resources (Ameen & Ahmad, 2011, 2012, 2013a).

Hence, based on relevant practice, the adaptive of knowledge by employees and the resulting success and failure, add to the collaborative efforts of the team learning objective (Kolb, 1984). However, creating more mistakes can lead to more uncertainty and panic among employees (Courvisanos, 2012). Knowledge management and its nurturing requires stringent and robust assessment and evaluation of decisions and actions that can all be achieved through internal infrastructure. Knowledge management is thus not only important in building creative ideas for the organization, but also in stimulating the human resource actions and drive innovation (Prajogo & Ahmed, 2006) that bring new ideas and have them manifest into new solutions. A hypothesis is therefore suggested:

H1: Knowledge management has a positive effect on organizational innovation.

B. Organizational Innovation (OI)

Crossan & Apaydin (2010) defined innovation as the product of a deliberate and successful realization of a new idea that provides advantages to the firm. Moreover, it has A procedure from innovation as a result and recognize three categorizations: process vs. product, radical vs. incremental, and technical vs. managerial

Numerous scholars and practitioners from varied fields have been showing increased interest in the innovation in the public sector (Borins, 2014; Brown & Osborne, 2013; Damanpour, Walker, & Avellaneda, 2009; Hartley, Sørensen, & Torfing, 2013; Osborne & Brown, 2011;

Walker, 2014). There is growing endorsement in the belief that innovation can play a significant contributing role in improving the value of public services alongside also enhancing the problem-solving prowess of governmental outlets to tackle societal obstacles (Damanpour et al., 2009; Walker, Damanpour, & A. Devece, 2010). In many scenarios, public sector innovation has been lauded for spearheading reform movements like New Public Management (Hood, 1991; Llewellyn, 2009; Pollitt & Bouckaert, 2011), e-governance (Bekkers & Homburg, 2005), the makeover-shift from government towards governance (Rhodes, 1996), and, presently, talks pertaining to the (minimizing) participation of government in a ‘Big Society’ (Lowndes & Pratchett, 2012). It is clear that the UAE is trying to become a leading technology centre based on the innovation strategy of the 4th Industrial Revolution (W. Al-Ali, Ameen, Isaac, Khalifa, & Hamoud, 2019; Alkhateri, Asma S; Abuelhassan, Abuelhassan E; Khalifa, Gamal S A; Nusari, Mohammed; Ameen, 2018; Ameen, Almari, & Isaac, 2019).

There are also a lot of factors which prove to be a hindrance to public sector innovations. Chief among them is the lack of adequate financial motivation and the other is the lack of genuine competitors. Probably the most important of the lot is the lack and deficiency of adequate resources. This includes not just financial investment but also the lack knowledge sharing and knowledge management. Innovation requires adequate personnel to being about the necessary changes. There is also a lack of the opportunity to make use of supporting services (Bloch, 2011).

III. RESEARCH METHOD

A. Overview of the Proposed Conceptual Framework

Isaksen & Tidd (2006) highlight innovation as being the ability of the enterprises to identify the new technologies and current trends and by studying them closely enough to exploit the knowledge and information from them to create new technologies and processes. Various global indicators have created a clear image that help in understanding the position of country level according to a set of measures that are recognized internationally. (Waleed Al-Ali, Ameen, Issac, Nusari, & Ibrahim Alrajawi, 2018; Al-Obthani, Ameen, Nusari, & Alrajawy, 2018; AlShamsi, Ameen, Isaac, Al-Shibami, & Sayed Khalifa, 2018; Haddad, Ameen, & Mukred, 2018). This essentially highlights the importance of the knowledge management as being part of innovation (Lichtenthaler,

2013). In figure 1, the conceptual framework is depicting the relations suggested by this study based on the literature review.

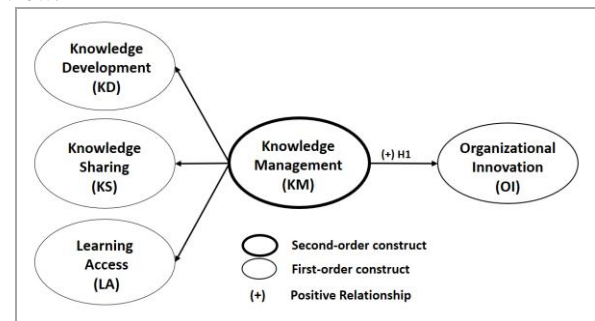


Fig. 1. The conceptual framework

B. Development of Instrument and Data collection

This study has adopted questionnaires to collect data. It was divided into two sections, the first measuring six core constructs using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) (please refer to Appendix A for the instruments). Variables were measured using a Likert Scale which recommended in the previous studies (Isaac, Aldholay, Abdullah, & Ramayah, 2019; Isaac, Abdullah, Ramayah, Mutahar, & Alrajawy, 2018; Isaac, Abdullah, Ramayah, & Mutahar, 2018). The second covered the demographic profile of respondents, measured using a nominal or ordinal scale. PLS (Partial Least Squares) SEM-VB (Structural Equation Modelling-Variance Based) was employed to assess the research model by utilizing the software SmartPLS 3.0.

IV. DATA ANALYSIS AND RESULTS

PLS (Partial Least Squares) SEM-VB (Structural Equation Modelling-Variance Based) was employed to assess the research model by utilizing the software SmartPLS 3.0 (Ringle, Wende, & Becker, 2015). Analyzing Data through the second-generation multivariate data analysis technique which is SEM offers a simultaneous analysis which leads to more accurate estimates (Osama Isaac, Abdullah, Ramayah, Mutahar, & Alrajawy, 2018; Osama Isaac, Abdullah, Ramayah, & Mutahar, 2018).

A. Measurement Model Assessment

The individual Cronbach's alpha, the composite reliability (CR), The average variance extracted (AVE), and the factor loadings exceeded the suggested value (Kline, 2010; Hair, Black, Babin, & Anderson, 2010) as illustrated in Table 1.

Table 1: Measurement model assessment

Constructs	Item	Loadin g (> 0.7)	M	SD	α (> 0.7)	CR (> 0.7)	AVE (> 0.5)
Knowledge Development	KD1	0.916	4.034	0.954	0.913	0.945	0.852
	KD2	0.932					

(KD)	KD3	0.921					
	KD4	Deleted					
Knowledge Sharing (KS)	KS1	0.879					
	KS2	0.893					
	KS3	0.831	3.657	1.024	0.922	0.942	0.763
	KS4	0.867					
	KS5	0.896					
Learning Access (LA)	LA1	0.949					
	LA2	0.949	3.849	0.954	0.935	0.959	0.886
	LA3	0.925					
Organizational Innovation (OI)	OI1	0.826					
	OI2	0.862					
	OI3	0.860	3.576	0.890	0.888	0.917	0.688
	OI4	0.858					
	OI5	0.734					

Note: M=Mean; SD=Standard Deviation, α =Cronbach's alpha; CR = Composite Reliability, AVE = Average Variance Extracted.

Key: KD: Knowledge Development, KS: Knowledge Sharing, LA: Learning Access, OI: Organizational Innovation.

The degree to which the articles distinguish among concepts or measure different constructs is demonstrated by discriminant validity. Fornell-Larcker was employed to analyze the measurement model's discriminant validity. Table 2 shows the outcomes for discriminant validity by employing the Fornell-Larcker condition. It was discovered that the AVEs' square root on the diagonals (displayed in bold) is bigger than the correlations among constructs (corresponding row as well as column values),

suggesting a strong association between the concepts and their respective markers in comparison to the other concepts in the model (Fornell & Larcker, 1981; Chin, 1998). According to Hair et al. (2017), this indicates good discriminant validity. Furthermore, exogenous constructs have a correlation of less than 0.85 (Awang, 2014). Therefore, all constructs had their discriminant validity fulfilled satisfactorily.

Table 2: Fornell-Larcker criterion

	<i>KD</i>	<i>KS</i>	<i>LA</i>	<i>OI</i>
KD	0.923			
KS	0.782	0.874		
LA	0.750	0.679	0.941	
OI	0.483	0.582	0.463	0.830

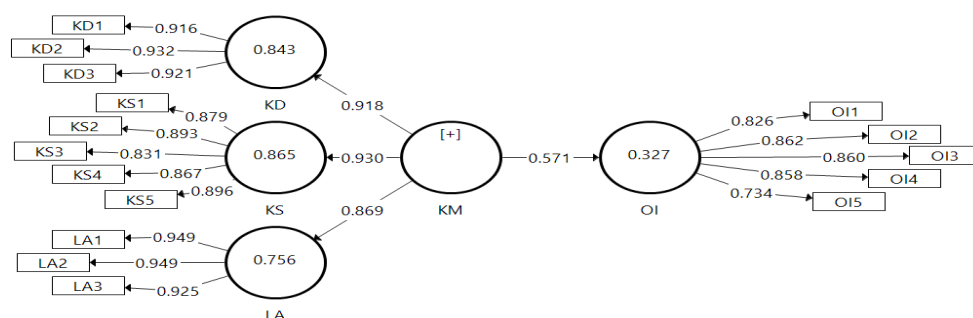
Note: Diagonals represent the square root of the average variance extracted while the other entries represent the correlations.

Key: KD: Knowledge Development, KS: Knowledge Sharing, LA: Learning Access, OI: Organizational Innovation.

B. Structural Model Assessment

The structural model can be tested by computing beta (β), R^2 , and the corresponding t-values via a

bootstrapping procedure with a resample of 5,000 (Hair, Hult, Ringle, & Sarstedt, 2017).



Key: KM: Knowledge Management, KD: Knowledge Development, KS: Knowledge Sharing, LA: Learning Access, OI: Organizational Innovation

Fig 2. PLS algorithm results

Figure 2 and Table 3 depict the structural model assessment, showing the results of the hypothesis tests. Knowledge management positively influence organizational innovation. Hence, H1 is accepted with ($\beta = 0.571$, $t = 14.354$, $p < 0.001$). Knowledge

management explains thirty-three percent of the variance in organizational innovation. The values of R^2 have an acceptable level of explanatory power, indicating a substantial model (Cohen, 1988; Chin, 1998).

Table 3: Result of Direct Effect Hypotheses

Hypothesis	Relationship	Std Beta	Std Error	t-value	p-value	Decision	R^2
H1	KM→OI	0.571	0.040	14.354	0.000	Supported	0.33

Key: KD: Knowledge Development, OI: Organizational Innovation.

V. DISCUSSION

The main objective of the current study is to examine the impact of knowledge management in term of (knowledge development, knowledge sharing, and learning access) on the organizational innovation within the public sector in the United Arab Emirates. One hypothesis was proposed to be examined.

H1 assumes that there is positive impact of knowledge management on the organizational innovation. Results revealed through the SEM analysis that knowledge management has a significant direct positive impact on the organizational innovation with ($\beta = 0.584$, $t = 14.896$, $p < 0.001$). Thus, H1 is achieved. The researcher examined the existing theories and literature and was able to establish a significant relationship between knowledge management and innovation. Knowledge management relates to organizational. The integration of better knowledgeable workforce in the public sector will lead to enhanced integration and sharing of knowledge across all departments, allowing the human capital to learn new skills and be a part of the development. It also boosts productivity and innovation that in turn leads to new knowledge creation. In a similar fashion, the results of the research indicated that there is a significant impact of knowledge sharing on the innovation execution.

VI. LIMITATION AND FUTURE WORK

This study was conducted by the researcher in the UAE and therefore its approach is limited. The researcher faced several limitations while conducting the study. Firstly, time was a great issue to complete the study with accurate results. While the researcher had an adequate time period to complete the study, time constraints were experienced since government entities were involved. The researcher was not able to get permissions easily to conduct the study.

After collecting the data, the researcher faced certain issues in analysing them since a few replies were inconsistent and in many cases it was understood that the respondents did not get the meaning of the questions. The researcher had to therefore spend time in making the respondents understand the questions in order to ensure accurate replies were received for analysis of data. The focus was on receiving the precise data that would enable

the researcher to meet the aims and objectives of the research.

Although the researcher has presented a revised conceptual framework which is based on the data analysis and has undergone validation, it might be difficult to generalize the framework for other countries until it has been tested and validated for the said country. Although the good practices framework would act as a framework to help in the implementation.

In the opinion of the researcher there is a need to study the topic from the change management perspective since it has a significant impact on the innovation and creativity execution in any organization. Change management is an important aspect during implementation of innovative business processes and therefore if there is resistance to change it can have effects on the implementation. Therefore, there is a need to study change management in detail with respect to innovation and creativity. Furthermore, it is also important to note that change differs from organization to organization hence the approaches to change management must be customized according to the requirements of the organization and thus the impact of change management needs to be studied and recorded further.

While the study was specific to the public sector organizations in the UAE, the researcher has generalized the frame of reference such that the framework can be applied to a wider context. This was especially because the factors affecting the innovation and creativity execution vary from region to region. Additionally, the key actors and their roles and responsibilities have an impact on the tasks and activities that are carried out during the implementation of innovative business processes or during the development of new, innovative, technology-driven products and services.

VII. CONCLUSION

The researcher conducted this study in view of the fact that more detailed picture about organizational innovation and their critical factors can statistically be investigated by using questionnaire method as it provides an insight into different views and opinions of organizational innovations. The proposed hypothesis was supported statistically. The conclusion derived from the present study is that knowledge management positively and significantly

contributed to the organizational innovation within the public sector in UAE. These factors are relatively important techniques that contributed to the innovation in the public sector in UAE, since their explanation of the total variance 32%. As a result, this study empirically reveals that public sector in the UAE ought to critically employ the effective knowledge management practices (knowledge

development, knowledge sharing, and learning access) (to cope with business environmental changes). The result further showed that knowledge management is important for public sector. Particularly in the UAE. Results would give insights for public sector in the UAE to improve the organizational innovation focusing on knowledge management management.

APPENDIX

APPENDIX A

Instrument for variables

Variable	Measure	Source
Knowledge Development (KD)	KD1: Our organization conducts brainstorming sessions to enable knowledge development. KD2: Our organization actively track the required knowledge to facilitate our employees and improve their performance. KD3: There are pre-developed channels through which information is shared and controlled across the organization. KD4: There is provision for unauthorized access to information.	(Amabile, 1983; Cabrera, Collins, & Salgado, 2006; Carneiro, 2000)
Knowledge Sharing (KS)	KS1: Our organization culture facilitates the sharing of information. KS2: Sharing of information is provided at all levels KS3: Through sharing of knowledge, we have retained top talent KS4: Sharing of knowledge has allowed our organization to build creativity. KS5: Our organization has tools in place to enable the sharing of knowledge across all individuals and teams.	(Amabile, 1983; Nonaka & Takeuchi, 1995; Youndt, Subramaniam, & Snell, 2004)
Learning Access (LA)	LA1: I am provided with the needed access to learn and grow at work. LA2: Our organization has a dedicated channel to take care of its employees learning needs. LA3: All employees can freely access and share information with some control from managers.	(Amabile, 1983; Cabrales et al., 2009)
Organizational Innovation (OI)	OI1: Our organization always try applying a new idea/technology at our organization. OI2: In our organization, new technology is adapted for improving the work processes. OI3: Our organization is quick to respond to the changing needs of its customer. OI4: In our organization, employees are hired on their creativity. OI5: In our organization, we believe in the open communication environment.	Sufian & Noor (2009) Khravish (2011)

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