ORGANIZATIONAL MEMORY, KNOWLEDGE MANAGEMENT, MARKETING INNOVATION AND COST OF QUALITY: EMPIRICAL EFFECTS FROM CONSTRUCTION INDUSTRY IN JORDAN

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ABSTRACT

The present research paper was conducted to achieve fourfold objectives. First, to explore the effect of organizational memory (OM) on marketing innovation (MI). Second, to recognize the effect of OM on cost of quality (COQ). Third, to verify the effect of knowledge management (KM) on MI. Finally, to find out the effect of KM on COQ. Therefore, the paper hypothesized that OM is significantly and positively related to MI as well as to COQ, and that KM is also significantly and positively related to MI and COQ. The sample of the research consisted of 87 companies working at construction industry in Jordan, from which data were collected using a questionnaire developed based on related works. The questionnaire comprised four parts covered the intended constructs, i.e., OM, KM, MI, and COQ. Each of the variables was measured using eight items. Reliability and validity were assured based on the findings of the measurement model. Then, a total of 435 questionnaires were handed to the participants. Out of the questionnaires distributed, 356 questionnaires were returned complete and valid, with a response rate equals 81.8%. The paper revealed, on the ground of the results of the structural model, that OM is significantly and positively related to both MI and COQ, and that KM is significantly and positively associated with MI and COQ. The paper contributed significant results from which both managers and researchers would benefit. Particularly, organizations are called to consider their past experiences and knowledge along with their ability to construct, disseminate and apply it in marketing innovation and reduction of quality-related costs due to the fact that both OM and KM form cornerstones in the success path of organizations. Despite the importance of the upshots concluded in the current research, it is noteworthy to state that this research is limited to the understudy companies, the sample used, the measurements utilized, and the way in which constructs were conceptualized. Further studied are in demand to extend the conceptualization of organizational memory using more measurements, relationships, populations, and industries to give the opportunity to OM-related findings to be generalize on a greater level among organizations. On the other hand, possible relationships in the research model still unrevealed, i.e., the effect of OM on KM, the effect of MI on COQ.

Keywords: Organizational Memory, Knowledge Management, Marketing Innovation, Cost of Quality.

INTRODUCTION

Many constructs were presumed to be critical factors required to support the success of organizations. Examples of these constructs comprehend competitive advantage (Aminu & Mahmood, 2016; Al-Hawary & Ismael, 2010; Al-Nady et al., 2013), which could be reached using the collective memories of the organization (Al-Hawary & AL-Hamwan, 2017; Hamidi & Jusoff, 2009). Organizational memory (OM) was one of those factors since it liesin the bottom of the organization's ability to compete by offering past knowledge and experiences that might reusedto avoid mistakes encountered by the organization in its previous projects (Esmaeli and Saeidabadi, 2016). On the other hand, OM goes beyond decision-making and solving problems by enhancing organizations productivity and efficiency (Ochoa et al., 2009). Accordingly, OM is a major capacity an organization should possess in order to be able to reach the competitive edge (Vrincianu et al., 2009).

In the context of OM conceptualization, two views were observed in the literature. The first one materialized OM as a structure of non-computerized means such as documents, papers, and organizational rules, while the second conceptualized OM as a construct fall within computerized systems, which is called organizational memory information systems. The dominant view of OM judges this construct as a storage repository (Rowlinson et al., 2010). Consequently, the greater part of OM definitions in the literature holds the view that OM is an implicit system of knowledge management process, in which past information is collected, stored, retrieved for the purpose of decision-making, problem-solving, or task performance in the organization (Walsh & Ungson, (1991); Bannon & Kuutti, (1996); Atwood, (2002); Shirsavar, (2015); Aminu & Mahmood, (2016)). For the purpose of the present research paper, OM is regarded as a continuous process directed to collect, either using automated or non-automated means, store and retrieve the past knowledge of the organization in order to apply it in the fulfillment of present and future activities to enhance the organizational capabilities in different domains such as decision-making process and problem-solving processes, operational activities, and quality management and marketing innovation guided to improve the organization's competency to achieve its goals efficiently and effectively.

Relationships between OM and other constructs such as KM, MI, and COQ is not well-documented in the literature, which makes it difficult to conduct this empirical research. Thus, and construct-based articulation were adopted to explore how these constructs correlate to and influence each other. The ultimate aim of this research is to recognize the importance of OM as well as KM for the improvement of MI and reduction of COQ. Picking the fruits of the current research meansa considerable contribution to organizational memory literature, from which organizations as well as researchers would benefit. Conceivably, organizations could use the content of organizational memory to avoid previous mistakes, reduce costs, and do their work in an efficient and effective manner. Researchers as well could examine relationships between organizational memory and other constructs in different industries in order to strength the notion of organizational memory applications.

LITERATURE REVIEW

Organizational Memory-Definition and Dimensions

An initial review of the literature surfaces numerous definitions of OM. A main theme between these definitions is the utilization of organizational knowledge previously emerged or

earned form past projects in order to fulfill present and future needs. For Bannon and Kuutti (1996), OM was a construct of two main elements, which were knowledge and experience as well asknowledge sharing. Walsh & Ungson (1991) defined OM as a process of directed to acquire, retain, and retrieve the historical informationof an organization and to use it for the benefit of the present organizational decisions. Aminu & Mahmood (2016) defined OM from the view of knowledge-based theory, in which the ability of an organization to integrate knowledge-driven assets was conceptualized as a major source of the core competencies of the organization. Accordingly, they characterized OM as information and knowledge acquired, stored and retrieved by an organization in procedural and declarative knowledge. Atwood (2002) qualified OM as a system comprises two major processes: knowledge acquisition and retention, in addition to knowledge storage and retrieval. The first process is concerned with collecting, codifying, organizing, and storing memories. The second process is related to the ability of retrieving information and reusing it. Shirsavar (2015) described OM in view of past and present levels of organizational performance, which constitute an independent part or integrated part within the knowledge management system of the organization.

Different dimensions of OM were proposed in the literature. Bannon & Kuutti (1996), based on Cook & Yanow's (1993) work, identified two views of OM; the first one perceives this variable as a component of employees' memory, while the second one conceives it as a component of the organization as a whole. Therefore, two terms were emerged: individual memory and organizational memory. Of course, the second term results for the accumulation of individuals' memories. Another fundamental work in OM discipline was the one of Walsh & Ungson (1991) who suggested five repositories of OM, which were individuals, culture, transformations, structures, and ecology. According to Bannon & Kuutti (1996), employees have information on their organization, either in formal records or informal forms such as brain memory. Culture also encompasses information related to past experience. Such information can be found in the language, symbols as well as stories. Transformations represent organizational processes used to transform the inputs to desired outputs. Structures refer to organizational roles in which information about tasks and activities are stored. Finally, ecology formulates information embedded in workplace setting and arrangements. Perez & Ramos (2013)argued that the five repositories (retention containers) provided by Walsh & Ungson's (1991) model represent one component of this model along with two other components, which are information acquisition and information retrieval. They clarified that the information retained in these five repositories are processed into knowledge so as to be shared and represented. Hanvanich et al. (2006) studied OM in terms of its major roles, which are the interpretative role and action guidance role. Aminu & Mahmood (2016) studied the relationship between organizational memory and organizational performance and conceptualized OM as a construct consists of two dimensions: procedural knowledge and declarative knowledge. Camisón & Villar-López (2011) measured OM by nine items covered stored organizational knowledge about the competitive environment, customers and market. Li et al. (2004) identified four components of OM: technical OM, managerial OM, cultural OM, and marketing OM. They defined technical OM as stored knowledge abouttechnical methods and experiences used in the context of product development, quality management, production control, and information technology applications. Managerial OM is knowledge retained about organizational performance. Cultural OM is related to knowledge stored about organizational culture. Finally, marketing OM is connected with suppliers, customers, marketing relationships, sales, purchases, and channels.

Knowledge Management–Definition and Dimensions

KM is a process in which organizations can acquire and use knowledge (Al-Hawary, 2015; Jennex & Olfman, 2002). Knowledge itself refers to a structure verify what organizational people know about customers, products, processes, defects and success (Al-Hawary & Al-Namlan, 2018; Zakeri et al., 2014). They definedKM as a process consists of four sub-processes which are knowledge capturing, knowledge developing, knowledge sharing, and knowledge using. Zakeri et al. (2014) identified four dimensions of KM: knowledge capturing, knowledge developing, knowledge sharing, and knowledge using. Slavković & Babić (2013) used three dimensions of knowledge management: knowledge creating, knowledge transfer, and knowledge embedding.

Marketing Innovation–Definition and Dimensions

Hassan et al. (2013) defined innovation in terms of four types: organizational innovation (OI), marketing innovation (MI), product innovation (PRI) and process innovation (PSI). Maktabi & Khazaei (2014) used a general term; which was organizational innovation to describe three categories of innovation: organizational learning, organizational responsiveness to environmental changes, and adoption of new ideas. The main concern of the current research is marketing innovation. The term was defined by Camisón & Villar-López (2011) as a new marketing method implemented to make changes in product attributes such as design or packaging without altering the functional specifications of that product (Al-Hawary & Aldaihani, 2016). For Hassan et al. (2013), MI is related to the application of new methods of marketing in aspects such as product design and customer relationships. Hassan et al. (2013) studied the impact of innovation types on organizational performance and used four items to measure marketing innovation related to introduction of new product designs, new distribution channels, new promotions, and new pricing strategies. Preda (2013) identified two dimensions of MI related to the generation of new ideas which were gathering and dissemination of market information. Medrano & Olarte-Pascual (2015) divided innovation in general into two types: technological innovation and marketing innovation and divided marketing innovation into four types: design, pricing, promotion, and placement. For them, the implementation of marketing innovation is less costly than technological innovation.

Cost of Quality–Definition and Dimensions

One of the most critical success factors of producing a quality product or providing customers with a quality service, or executing quality tasks is the reduction of quality costs (Alshurideh et al., (2017); Alolayyan et al., (2018); Al-Hawary & AL-SMERAN, (2016); Seetharaman et al., 2006). In this context, Khan and Beg (2012) defined COQ as a cost of poor quality. Quality experts, i.e., Crosby (1979); Juran (1988) highlighted that organizations could eliminated cost of poor quality in case of producing perfect products. Two types of costs were identified in the context of manufacturing a product or providing a service, which are cost of manufacturing and cost of quality (Hsieh, 2006). The main concern of the current research is COQ. It was conceptualized as a sum of four types of cost, which are cost of prevention, cost of appraisal, cost of internal failure and cost of external failure. Prevention cost refers to cost incurred by the organization in its effort to review new products, planning for quality, evaluation of processes capabilities, and quality-oriented education and training. Appraisal cost concerns

measuring and evaluations of products and services conducted to ensure the confirmatory of quality standards. On the other hand, the cost of internal failure refers to costs experienced before providing customers with products or services. Examples of internal failure costs include re-work, re-testing or re-inspection. Finally, external failure cost belongs to cost sustained after delivery of products or services to the ultimate customers (Fassoula, 2005; Sower et al., 2006).

Hypotheses Development

Organizational memory and marketing innovation: OM contains two major roles, which are the interpretative role and action guidance role. The first role refines the way in which information and experience of an organization are organized and stored. The second role steers the organizational behavior (Hanvanich et al., 2006). For the authors, the relationship between OM and innovativeness depends on the type of the innovation process itself. They stated that radical innovations which are outside the present tasks of the organization results from generative learning, while incremental innovations which is inside the present task of the organization results from adaptive learning. One important cue of their study is that OM is positively related to innovativeness in view of adaptive learning. Camisón and Villar-López (2011) explored the role of OM and learning capabilities to both organizational and marketing innovation using a sample consisted of 159 industrial companies in Spain. Their results accepted that OM and learning capabilities have positive impacts on organizational and marketing innovation. Therefore, it was hypothesized that:

H1: OM significantly and positively affects MI at construction industry in Jordan

Knowledge management and marketing innovation: McAdam (2000) reviewed the literature and found that knowledge management play a significant role in the enhancement of innovation. Particularly, the study identified four drivers of innovation, which were knowledge construction, knowledge embodiment, knowledge dissemination and knowledge use. According to Kaziliunas (2011), examples of knowledge management role include the development of the organizational knowledge and applying it to the organizational work directed to enhance products produced or service delivered. The author recommended that organizations have to relate business activities and knowledge management practices in order to gain more profit with possible lowest costs. Ho (2008) stated that one of knowledge management objectives is to equip individuals with the ability to be innovative. According to Slavković & Babić (2013), the positive influence of knowledge management on innovativeness has been documented in several previous studies. Preda (2013) stated that the first step in innovation process is founded on gathering and dissemination of market-related information from which new ideas can be generated. Hence, the following hypothesis was offered:

H2: KM significantly and positively affects MI at construction industry in Jordan

Organizational memory and cost of quality: Little studies have been took place to investigate the relationship between organizational memory and service quality. However, Vrincianu et al. (2009) conducted a study in order to recognize the significance of OM form organizational learning perspective and as an approach from knowledge management as well as quality management. They stated that OM can be conceptualized based on computerized systems, i.e., organizational memory information systems or based on non-computerized means such as documents and practices of the organization's culture. From their paper, one can

conclude that the content of organizational memory, i.e., past experience and knowledge, can be employed to enhance and assure the achievement of service quality objectives. One of the most important variables in this context is to reduce costs incurred to meet the standards required to meet quality objectives. Esmaeli & Saeidabadi (2016) stated that past experiences and knowledge retained in OM structure an organization acquires from its previous projects can be utilized in present or future projects. Examples of OM implementations include reduction of costs (Pai et al., 2008 cited in Khosrowpour, 2000). According to quality gurus, Crosby, Deming, Juran and Feigenbaum as cited in Rodrigues (2007), quality comprises meeting or exceeding the expectations of customer at a lowest conceivable cost. Fassoula (2005) added that the cost of quality consists of four types (prevention, appraisal, internal failure and external failure costs). It was recommended to reduce these types of costs. Thus, the following hypothesis was provided:

H3: OM significantly and positively affects COQ at construction industry in Jordan.

Knowledge management and cost of quality: The role of knowledge management is critical to organizations (Kaziliunas, 2011). Knowledge management processes can be used to support positive organizational outcomes through product quality improvement and cost reduction (Slavković and Babić, 2013). Sower et al. (2006) indicated that the lack of knowledge about quality basics in the organization is considered a main cause prevent organization from adopting cost of quality programs. Accordingly, it was presumed that:

H4: KM significantly and positively affects COQ at construction industry in Jordan.

RESEARCH METHODOLOGY

Research Sample and Data Collection

The sample of this research consisted of 87 construction companies working in Jordan. Five questionnaires were handed to each of the companies to be filled by managers or employees. The total number of questionnaires distributed was 435 questionnaires. A total of 356 questionnaires were returned complete and valid.

Research Measures

OM was measured using concern individual andorganizational memory, OM interpretative and action guidance roles, procedural knowledge and declarative knowledge, technical OM, managerial OM, and marketing OM. (Li et al., 2004; Hanvanich et al., 2006; Camisón & Villar-López, 2011; Aminu & Mahmood, 2016). Knowledge management was assessed based on the four drivers of innovation identified by McAdam (2000), which were knowledge construction, knowledge dissemination and knowledge use. Marketing innovation was measured by four items adopted from Camisón & Villar-López (2011). Cost of quality was measured using items related to four types of quality costs, which are prevention cost, appraisal cost, internal failure cost, and external failure cost (Fassoula, 2005).

Research Conceptual Model

The conceptual model of this research paper as portrayed in Figure 1 consists of four variables; OM, KM, MI, and COQ. The model hypothesized that OM is significantly and

positively associated to MI and COQ, and suggested that KM is significantly positively related to MI and COQ.

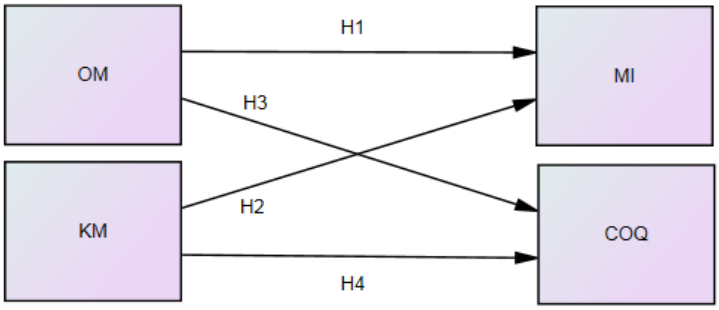

FIGURE 1
RESEARCH CONCEPTUAL MODEL

RESULTS

Reliability and Validity

The results produced in Table 1 indicated acceptable levels of reliability and validitywhereasfactor loadings of all items were above the limit suggested in several studies which is 0.708 or 0.707(Camisón and Villar-López, 2011 and Aminu and Mahmood, 2016). Cronbach's alpha values range from 0.764 to 0.779 were above 0.70 (Sit et al., 2009). The average variance extracted (AVE) values in the fourth column in the table were also above the value of 0.050 (Sit et al., 2009 and Camisón and Villar-López, 2011) which represents the half of the extracted variance. That is, all variables explain greater than the half of factors' variances (Hair et al., 2014). In the fifth column of the table, composite reliability values were demonstrated. It became obvious that all values of the composite reliability are above the presumed limit 0.70.

Table 1
RELIABILITY AND VALIDITY OF VARIABLES USED IN THE STUDY

Variables	Items	Factors Loadings[A]	AVE [B]	Cronbach's α [C]	Composite Reliability[D]	Sqrt (AVE)[E]
OM	OM_1	0.732	0.667	0.764	0.771	0.817
	OM_2	0.741				
	OM_3	0.782				
	OM_4	0.785				
KM	KM_1	0.821	0.681	0.781	0.784	0.825
	KM_2	0.799				
	KM_3	0.831				
	KM_4	0.794				
SQ	SQ_1	0.722	0.701	0.794	0.796	0.892
	SQ_2	0.758				
	SQ_3	0.749				
	SQ_4	0.789				
MI	MI_1	0.884	0.754	0.779	0.800	0.894
	MI_2	0.843				
	MI_3	0.820				
	MI_4	0.791				

A: The acceptable limit: FL is above 0.707
B: The acceptable limit: AVE is above 0.50
C: The acceptable limit: α is above 0.70
D: The acceptable limit is above 0.70
E: The acceptable limit: sqrt (AEV) of one variable is greater than its correlation with other variables
Note: three items were eliminated from the analysis: OM_5, OM_6 and MI_5.

In order to explore the discriminant validity, two values for each of the variables should be compared; the square root of the AVE (Sqrt of AVE) and the correlation coefficients between every two variables. Thus, the correlation matrix for all variables (OM, KM, SQ, and MI) was calculated as can be seen in Table 2.

Table 2
PEARSON'S CORRELATION MATRIX

Variables	OM	KM	SQ	MI
OM	-	0.631	0.451	0.377
KM		-	0.412	0.498
SQ			-	0.369
MI				-

Table 2 highlights that all variables are significantly correlated to each other. The correlation coefficients were ranged from 0.369 to 0.631. When compared to the square root of the average variance extracted in Table 1, the correlation coefficient of each variable with any other variable is less than the value of its square root of AVE. Consequently, the discriminant validity criterion has been met. Based on the findings displayed and concluded from Table 1 and Table 2, it was revealed that the criteria required for reliability and validity in this research were achieved.

Goodness of Fit of the Measurement and Structural Models

Chi-square ratio to degrees of freedom (χ^2/df), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), parsimony goodness-of-fit index (PGFI), comparative fit index (CFI), as well as the root mean square error of approximation (RMSEA) were used to assess the goodness of fit of the measurement and the structural models. According the results illustrated in Figure 2 and Table 3, both models used in the current research fitted that data (Hanvanich et al., 2006, Ho, 2008, Sit et al., 2009, Camisón and Villar-López, 2011 and Aminu and Mahmood, 2016).

Hypotheses Testing

Four hypotheses were suggested in the current research. The results shown in Figure 3 and Table 4 confirmed that all hypotheses were supported. It was revealed that OM is significantly and positively related to MI (path coefficient=0.370, P<0.01), and to COQ (path coefficient=0.773, P<0.01). On the other hand, KM issignificantly and positively associated with MI(path coefficient=0.591, P < 0.01), and to COQ (path coefficient=0.122, P<0.01).

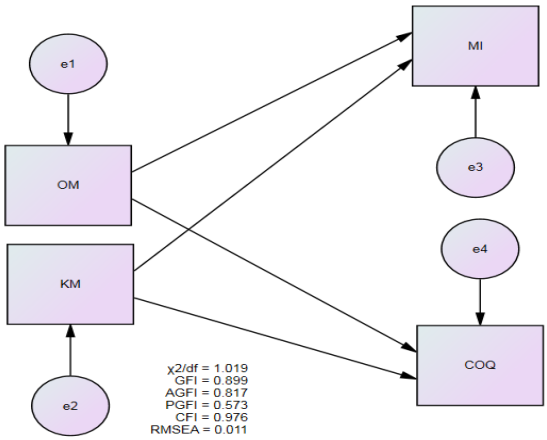

FIGURE 2
RESEARCH MEASUREMENT MODEL

Table 3
INDICES OF THE MEASUREMENT AND STRUCTURAL MODELS

Indices	The measurement model	The structural model
χ^2/df[A]	1.019	1.183
GFI[B]	0.899	0.857
AGFI[C]	0.817	0.809
PGFI [D]	0.573	0.591
CFI[E]	0.976	0.961
RMSEA[F]	0.011	0.023

A:The acceptable value: χ^2/dfis less than 3
B: the acceptable value: GFI is greater than or equals to 0.80
C: the acceptable value: AGFI is greater than or equals to 0.80
D: the acceptable value: PGFI is greater than 0.5
E: the acceptable value: CFI is greater or equals to 0.90
F: the acceptable value: RMSEA is less than or equals 0.08

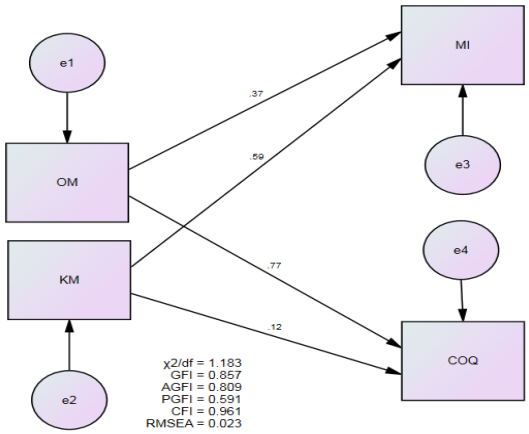

FIGURE 3
RESEARCH STRUCTURAL MODEL

Table 4
RESULTS OF HYPOTHESES TESTING

Hypotheses	Path			β	SE	P value	Result
H1	OM	→	MI	0.370	0.022	0.000 *	Supported
H2	KM	→	MI	0.591	0.034	0.000 *	Supported
H3	OM	→	COQ	0.773	0.029	0.000 *	Supported
H4	KM	→	COQ	0.122	0.031	0.000 *	Supported
* P < 0.01							

DISCUSSION, CONCLUSION AND LIMITATIONS

The aim of this research was to explore the effect of OM on MI and COQ, the effect of KM on MI and COQ from perspectives of managers and employees in the context of construction companies in Jordan. Generally, the results indicated that there are significant and positive effects of OM and KM on MI and COQ. These results are in line with numerous conclusions of previous studies. With regard to the relationship between OM and MI, Hanvanich et al. (2006) indicated that OM is positively related to innovativeness. Camisón and Villar-López (2011) found positive effects of both OM and learning capabilities on both organizational and marketing innovation. As for the effect of OM on COQ, Vrincianu et al. (2009) argued that one important benefit of OM is to enhance the achievement of quality in the organization. That is, to reduce the incurred costs due to poor quality. Since COQ consists of four types: prevention, appraisal, internal failure and external failure costs, the reduction of these costs results in good quality (Fassoula, 2005). According toCrosby (1979) and Juran (1988), elimination the costs of quality could be reached by producing or providing good quality products or services. Respecting the relationship between KM and MI, McAdam (2000) showed a positive influence of KM in innovation improvement considering that knowledge creation, dissemination and use form main drivers of innovation in any organization. Ho (2008) described one critical objective of KM which is to provide individuals with ability to innovate. Slavković and Babić (2013) cited numerous evidences concerned the positive effect of KM on innovativeness. Respecting the relationship between KM and COQ, the role of KM in organizations was emphasized (Kaziliunas, 2011) in terms of quality improvement and reduction of cost (Slavković & Babić, 2013). The objectives of the current research were achieved. However, it was obvious that collecting data from 87 companies in construction industry was arduous experience since the members of the sample were spread in different locations in Jordan. Another limitation of the research is related to companies understudy which were randomly selected from those working at construction sector. In conclusion, the research found that organizational memory, knowledge management are positively affects marketing innovation and cost of quality. In fact, knowledge repository requires management processes to collect, store, and utilize this knowledge effectively in introducing marketing innovation and ensuring a good quality for products and service through the elimination of poor quality costs.

ACADEMIC AND MANAGERIAL IMPLICATIONS

The conceptual model of the current study offers new directions for future research. Researchers could study on the basis of this model the relationship between organizational memory and knowledge management, total quality management initiative, customer relationship management, managerial creativity as well as market performance in order to examine the influence of OM on these constructs. Researchers also could use the same constructs with different samples from different industries. On the other hand, managers would gain an advantage from taking the impact of OM on marketing innovativeness into their account. Hence, collect, store and apply knowledge of past projects on present and future projects. Another managerial implication of this research is that both OM and KM results in good quality of products and services offered by the organization since these constructs lead to enhanced marketing innovativeness whence design, pricing, promotion, and placement and reduced cost of quality.

REFERENCES

Al-Hawary, S.I.S. (2015). Human resource management practices as a success factor of knowledge management implementation at health care sector in Jordan. *International Journal of Business and Social Science, 6*(11), 83-98.

Al-Hawary, S.I.S., & Ismael, M.A. (2010). The effect of using information technology in achieving competitive advantage strategies: A field study on the jordanian pharmaceutical companies. *Al Manara for Research and Studies, Economy and Administrative Sciences, 16*(4), 1960-2030.

Al-Hawary, S.I.S., & Al-Namlan, A.A (2018). Impact of electronic human resources management on the organizational learning at the private hospitals in the state of Qatar. *Global Journal of Management and Business Research: A Administration and Management, 18*(7), 1-11.

Al-Hawary, S.I.S., & Aldaihani, F.M. (2016). Customer relationship management and innovation capabilities of kuwait airways. *International Journal of Academic Research in Economics and Management Sciences, 5*(4), 201-226.

Al-Hawary, S.I.S., & AL-Hamwan, A.M. (2017). Environmental analysis and its impact on the competitive capabilities of the commercial banks operating in Jordan. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 7*(1), 277-290.

Al-Hawary, S.I.S., & AL-SMERAN, W.F. (2016). Impact of electronic service quality on customers satisfaction of islamic banks in Jordan. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 7*(1), 170-188.

Al-Nady B.A.A., Al-Hawary, S.I.S., & Alolayyan M.N. (2013). Strategic management as a key for superior competitive advantage of sanitary ware suppliers in kingdom of Saudi Arabia. *International Journal of Management and Information Technology, 7*(2), 1042-1058.

Alolayyan, M.N., Al-Hawary, S.I.S., Mohammad, A.A.S., & Al-Nady, B.A.H.A. (2018). Banking service quality provided by commercial banks and customer satisfaction. A structural equation modeling approaches. International Journal of Productivity and Quality Management, *24*(4), 543–565.

Alshurideh, M.T., Al-Hawary, S.I.S., Batayneh, A.M.I.., Mohammad A.I., & Alkurdi, B. (2017). the impact of islamic banks' service quality perception on jordanian customers loyalty. *Journal of Management Research. 9*(2), 139-159.

Aminu, M., & Mahmood, R. (2016). On the relationship between procedural and declarative organizational memory and their effects on SME performance. *International Business Management, 10*(3), 241-247.

Atwood, M. (2002). Organizational memory systems: Challenges for information technology. Proceedings of the 35th Hawaii International Conference on System Sciences Conference on System Sciences (HICSS-35.02), 1-9.

Bannon, L., & Kuutti, K. (1996). Shifting perspectives on organizational memory: From storage to active remembering. Proceedings of the 29th Annual Hawaii International Conference on System Sciences (HICSS-29), 156-167.

Camisón, C., & Villar-López, A. (2011). Non-technical innovation: Organizational memory and learning capabilities as antecedent factors with effects on sustained competitive advantage. *Industrial Marketing Management, 40,* 1294-1304.

Crosby, P. (1979), Quality is Free, McGraw-Hill, New York, NY.
Esmaeli, N., & Saeidabadi, R. (2016). Design of organizational memory management model in the education system in Mazandaran Province. *Mediterranean Journal of Social Sciences MCSER Publishing, Rome-Italy, 7*(3/3), 20-27.
Fassoula, E. (2005). Reverse logistics as a means of reducing the cost of quality. *Total Quality Management Business Excellence, 16*(5), 631–643.
Hair, J., Hult, G., Ringle, C., & Sarstedt, M. (2014). A primer on partial least squares structural equation modeling (PLS-SEM). Sage Publication, Thousand Oaks.
Hamidi, S., & Jusoff, K. (2009). The characteristic and success factors of an organizational memory information system. *Computer and Information Science, 2*(1), 142-151.
Hanvanich, S., Sivakumar, K., & Hult, G. (2006). The relationship of learning and memory with organizational performance: The moderating role of turbulence. *Journal of the Academy of Marketing Science, 34*(4), 600-612.
Hassan, M., Shaukat, S., Nawaz, M., & Naz, S. (2013). Effects of innovation types on firm performance: an empirical study on Pakistan's manufacturing sector. *Pakistan Journal of Commerce and Social Sciences, 7*(2), 243-262.
Ho, L.A. (2008). What affects organizational performance? The linking of learning and knowledge Management. *Industrial Management & Data Systems, 108*(9), 1234-1254.
Hsieh, K. (2006). The study of cost-tolerance model by incorporating process capability index into product lifecycle cost. *International Journal of Manufacturing Technology, 28*, 638-642.
Jennex, M., & Olfman, L. (2002). Organizational memory/knowledge effects on productivity, a longitudinal study. Proceedings of the 35th Hawaii International Conference on System Sciences (HICSS-35.02), 1-10.
Juran, J.M. (1988) Juran's quality control handbook, London: McGraw-Hill.
Kaziliunas, A. (2011). Development of knowledge model for effective implementation of quality management programs. *Public Policy and Administration, 10*(4), 577-588.
Khan, P., & Beg, M. (2012). Measuring cost of quality (COQ) on SDLC projects is indispensible for effective software quality assurance. *International Journal of Soft Computing and Software Engineering, 2*(9), 1-15.
Li, Z., YeZhuang, T., & ZhongYing, Q. (2004). An empirical study on the impact of organizational memory on organizational performance in manufacturing companies. Proceedings of the 37th Hawaii International Conference on System Sciences, 1-10.
Maktabi, S., & Khazaei, A. (2014). The Impact of organizational learning on organizational performance and organizational innovation: Evidence from bank industry of Iran. *International Journal of Economy, Management and Social Sciences, 3*(10), 569-573.
McAdam, R. (2000). Knowledge management as a catalyst for innovation within organizations: A qualitative study. *Knowledge and Process Management, 7*(4), 233-241.
Medrano, N., & Olarte-Pascual, C. (2015). An empirical approach to marketing innovation in small and medium retailers: an application to the Spanish sector. *Temporary Economics, 10*(3), 205-216.
Ochoa, S., Herskovic, V., Pineda, E., & Pino, J. (2009). A transformational model for organizational memory systems management with privacy concerns. *Information Sciences, 179*, 2643–2655.
Pai, P., Miller, L., Honavar, V., & Wong, J. (2000). Supporting organizational knowledge management with agents. In khosrowpour, M. (2000). Challenges of information technology management in the 21st century. Information Resource Management Association, International Conference, Anchorage, Alaska. Idea Group Publishing, USA.
Perez, G., & Ramos, I. (2013). Understanding organizational memory from the integrated management systems (ERP). *Journal of Information Systems and Technology Management, 10*(3), 541-560.
Preda, G. (2013). The influence of entrepreneurial orientation and market-based organizational learning on the firm's strategic innovation capability. *Management & Marketing Challenges for the Knowledge Society, 8* (4), 607-622.
Rodrigues, C. (2007). The quality organization: A conceptual framework. *Total Quality Management, 18*(7), 697-713.
Rowlinson, M., Booth, C., Clark, P., Delahaye, A., & Procter, S. (2010). Social remembering and organizational memory. *Organization Studies, 31*(1), 69-87.
Seetharaman, A., Sreenivasan, J., & Boon, L. (2006). Critical success factors of total quality management. *Quality & Quantity, 40*, 675-695.
Shirsavar, H. (2015). Relationship between knowledge management and organizational memory in Islamic Azad University. *International Journal of Education and Information Technology, 1*(4), 139-147.
Sit, W.Y., Ooi, K.B., Lin, B., & Chong, A. (2009). TQM and customer satisfaction in Malaysia's service sector. *Industrial Management & Data Systems, 109*(7), 957-975.
Slavković, M., &Babić, V. (2013). Knowledge management, innovativeness, and organizational performance: Evidence from Serbia. *Economic Annals, 58*(199), 85-107.
Sower, V., Quarles, R., & Broussard, E. (2006). Cost of quality usage and its relationship to quality system maturity. *International Journal of Quality & Reliability Management, 24*(2), 121-140.

Vrincianu, M., Anica-Popa, L., & Anica-Popa, I. (2009). Organizational memory: An approach from knowledge management and quality management of organizational learning perspectives. *Quality Management in Services, 11* (26), 473-481.

Walsh, J., & Ungson, G. (1991). Organizational memory. *The Academy of Management Review, 16*, 57-91.

Zakeri, S., Goudarzi, H. Atamanesh, H., & Koochaki, H. (2014). Total quality management and knowledge management: A researches review. *Technical Journal of Engineering and Applied Sciences, 4*(3), 135-142.