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Research Article

Factors that Influence the Success of Knowledge Management Implementation in Jordanian Higher Education Institutions

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Abstract: This study aims to explore and investigate the factors that may influence the success of Knowledge Management (KM) implementation in Jordanian Higher Education (HE) Institutions. KM has been described as a new strategic tool for creating competitive advantage in a business environment. Most of the studies have investigated the success factors of KM implementation in business organizations. The literature indicated that the field of education lacks empirical research on related topics since it has received less attention than other fields. Based on a review of the literature, our study identified and incorporated a number of key variables (namely, organizational culture, processes, measurement, organizational knowledge and Information Technology (IT) infrastructure) that are proposed to influence the success of KM implementation in Jordanian Higher Education Institutions. A total of 324 academic and non-academic staff who are working in Jordanian private universities were invited to respond to the questionnaire of this study. A total of 233 usable and complete responses were received, which produced a final response rate of 72%. The results of this study showed that IT infrastructure is the strongest predictor of KM implementation success followed by processes, measurement, organizational culture and organizational knowledge. Recommendations and directions for future research and practical applications were discussed at the end of this research article.

Keywords: Educational systems, higher education institutions, information technology, knowledge management, success factors

INTRODUCTION

Knowledge Management (KM) has generated much interest since the beginning of 1990s (Omotayo, 2015). Many theorists proposed that knowledge is a valuable asset which can increase the organizational performance and create a competitive advantage for business organizations (Grant, 1996). It is predicted that the only sources of sustainable competitive advantage in the future would be the knowledge that an organization possesses and the organization's ability to learn and make maximum use of its knowledge faster than its competitors (Meier, 2011). The organizations rely on effective capturing and management of its knowledge as an intellectual asset, rather than tangible assets and natural resources, in order to achieve improved performance (Lee and Sukoco, 2007). As such, investments in KM continue to grow dramatically from year to year. It is believed that more than $73B was invested in KM by United States (US) firms during 2007 (McGreevy, 2007). Clearly, KM has become the dominant source of competitive advantage and the key economic resource in many sectors today. KM is defined as a systematic way of creating, managing, sharing and using knowledge and information of an organization. KM includes processes of creation, storage, use, dissemination and application of knowledge (Gonzalez and Martins, 2017). KM is a new management paradigm in a business environment that can be considered as the main competitive tool (Alavi and Leidner, 2001). This definition has been referring to the practices of KM by business organizations. Most studies in the previous literature of KM focused on business studies that are related to the applications of KM in business organizations (e.g., Tan, 2011; Abd-Elaziz *et al*., 2012; Huang and Lai, 2012; Samad *et al*., 2014; Lindner and Wald, 2011; Arab *et al*., 2017).

Higher Education Institutions have considerable opportunities to apply KM practices to support and realize every task of their educational mission (Kidwell *et al*., 2000). KM can be used to improve and support educational administration, which in turn supports teaching and learning in the educational environment. The combination of KM and Information

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Communication Technology (ICT) tools can help the education institutions to be able to provide better educational facilities, administrative services, strategic planning process, student retention, teaching-learning process, cost-effectiveness, data transfer, collaboration, research, faculty development and admissions. Also, it can provide students and alumni with new expanded web-based services, research process curriculum development and work analysis (Gopal and Shobha, 2012; Petrides and Guiney, 2002). These benefits have led to an increasing number of recent studies pertaining to KM in Higher Education Institutions. However, the majority of KM studies conducted a review of existing literature (Ali *et al*., 2014; Gopal and Shobha, 2012) which covers the impact of KM implementation in Higher Education Institutions to the firm growth (Hennessy, 2012), technical aspects of KM implementation in higher education (Yeh, 2011), KM collaboration and its impact on higher education (Ramakrishnan and Yasin, 2012). It is obvious that the studies which are pertaining to the critical factors that influence the success of KM implementation in Higher Education Institutions are few.

Nevertheless, the application and implementation of KM are not sufficient to ensure the success of Higher Education Institutions and to achieve high performance. There have been a large number of reported cases of KM initiative failure due to the reluctance of employees to use the KM systems (Frost, 2014; Kankanhalli *et al*., 2005; Choy and Suk, 2005; King, 2007). The researchers summarized the main visible factors that lead to the failure of the implementation of KM systems. They believe that these factors are associated with the lack of key performance indicators and measurable benefits, inadequate management support, inadequate skills of knowledge managers and workers, problems with organizational culture, improper planning, design, coordination and evaluation, improper organizational structure and improper IT infrastructure (Frost, 2014; Akhavan and Pezeshkan, 2014). Organizations are reluctant to publish stories of failure due to their policies, image and privacy (Akhavan and Pezeshkan, 2014).

It is very important to investigate the factors that may lead to successful implementation of KM systems in Higher Education Institutions. Therefore, the main objective of this study is to identify the factors that influence the successful implementation of KM systems in Higher Education Institutions in Jordan.

LITERATURE REVIEW

Davenport and Völpel (2001) defined KM as the exploitation and development of the knowledge as valuable organizational asset to achieve the goals of the organizational. KM has become essential for organizations to survive and succeed (Civi, 2000). In German business, there is an old saying" If Siemens knew what it knows it would be a rich company" (Voelpel and Dous, 2006). This indicates that managing knowledge is very important for increasing the profitability of companies. KM can be recognized as a tool that enables the companies to create value and gain efficiency by avoiding reinventing the wheel (Gibbert *et al*., 2002). The focus of KM is to exploit the knowledge assets of an organization (Omotayo, 2015). KM strategies and practices provide support to discover the knowledge gaps, enable people to obtain and share the required information with others, create new knowledge and improve the quality and the speed of decision-making (Petrides and Ngyuen, 2008; Giampaoli *et al*., 2017).

Due to high failure rate of KM implementations (Frost, 2014; Akhavan and Pezeshkan, 2014), the academic literature has focused on business organizations and the factors that can influence the successful implementation of KM in these organizations. Hasanali (2002) conducted a review study to identify the most critical success factors in organizations. These factors include leadership, culture, structure, IT infrastructure and measurement. Wong (2005) developed a conceptual model of the factors that can influence the success of KM projects in Small and Medium Enterprises (SMEs), they incorporated management and leadership support, culture, information technology, strategy and purpose, measurement, organizational infrastructure, processes and activities, motivational aids, resources, training and education and finally human resource management. In another conceptual study, Jennex and Olfman (2005) proposed that system quality, knowledge quality and service quality could influence the intention to use and the user satisfaction, which could in turn influence the net benefits of KM. In their case study, Akhavan *et al*. (2006) extracted data from some business organizations, including Ernst & Young, HP, Microsoft, Siemens, Teltech, business edge solutions. Their findings indicated that knowledge strategy, training programs, CEO support and commitment, business process reengineering, network of experts, knowledge sharing, organizational culture, pilot, knowledge storage, knowledge audit and knowledge architecture are the most effective factors that influence the knowledge success in business organizations. Lindner and Wald (2011) found in their empirical study that knowledge culture, management commitment, systematic processes, institutionalization, evaluation and controlling of KM, ICT support are the most effective factors that influence the KM success and effectiveness. In the healthcare sector, Ali *et al*. (2009) proposed a new conceptual research model for KM implementation success. Knowledge sharing and retrieving within organizations are found to be significantly influenced by perceived usefulness of KM systems, user satisfaction, security, subjective norm,

culture, knowledge content quality, KM systems quality, leadership and incentives.

In education institutions, the utilization of both tacit and explicit knowledge must add value by creating knowledge that can be employed to strengthen the educational processes and activities (Adhikari, 2010). Tacit knowledge is personal, context-specific and subjective knowledge. Explicit knowledge is codified, systematic, formal and therefore it is easier to be distributed to others (Polanyi, 1997). The ultimate goal is to transfer the tacit knowledge to explicit knowledge (Dhanaraj *et al*., 2004). In his study, Rowley (2000) described four objectives of KM in Higher Education Institutions. These objectives are as follows: Creating knowledge repositories, improving knowledge access, enhancing knowledge environment and viewing knowledge as an asset. These objectives can lead to the creation and the dissemination of knowledge management activities in order to promote organizational learning, information production and sharing and knowledge empowerment to improve the performance of the organizations (Ali *et al*., 2014). KM can help Higher Education Institutions to enhance their knowledge investment via providing better quality effective mechanisms, effective knowledge delivery and development of human resources (Nilsook and Sriwongkol, 2009). Higher Education Institutions which are implementing KM initiatives would be able to identify critical knowledge and expertise amongst their resources in order to formulate educational strategies and apply best organizational practices at all management levels (Jundale and Navale, 2009). Ali *et al*. (2014) discussed the key role that the variety of information technologies play in KM implementation in Higher Education Institutions and the relationship between these technologies and the main objectives stated by Rowley (2000). The authors also discussed the challenges that might face KM implementation and the relationship between them and the human nature, the organizational hierarchy and the culture of organizations. Also, the authors presented a discussion and provided some recommendations on how to develop an effective implementation of KM; they emphasized that researchers, lecturers, students and other stakeholders must be willingly committed to share and retrieve the knowledge via the variety of available information technologies.

Recently, the literature highlighted the importance of KM. Kidwell *et al*. (2000) observed that KM can be used to improve the mission of the universities. Also, Martin (1999) declared that KM could support the preservation of organizational assets by optimizing the knowledge within the organization, encouraging a knowledge-creation process and utilizing that knowledge for teaching and learning. Tajuddin (2006) stated that the first action of KM is to reform and enhance the educational curriculum towards some more human-oriented strategies which can benefit the greater masses. Jones and Sallis (2013) stated that there is a vital need for KM systems in universities.

Chan and Chau (2005) mentioned that applying KM services give universities a competitive advantage via providing a foundation for storing and using information. Different from the corporate motivation for competitive achievement, the main focus on KM for academe can be described as an endless sharing of activities. The importance of both activity sharing and achieving knowledge is the spirit of an educational system (Milam, 2001). Knowledge sharing is considered as a key enabler of KM; therefore, studies have focused on the factors that enable the success of KM sharing. Researchers listed the most important success factors as follows: culture (Ardichvili *et al*., 2006; Lai and Lee, 2007; Pi *et al*., 2013; Mueller, 2014), top management and motivation (Connelly and Kelloway, 2003; Kulkarni *et al*., 2006), rewards and incentives (Yao *et al*., 2007; Siemsen *et al*., 2007), Information Technology (IT) and social media (Top, 2012; Ma and Chan, 2014). Regarding the effective factors that influence KM successful implementation in universities, Basu and Sengupta (2007) investigated the success of KM implementation in Indian universities. Their findings indicated that ICT infrastructure, culture, motivation and senior management attitude could play a major role in successful implementation of KM. Hameed and Badii (2012) conducted a descriptive study to find the factors that influence the proper implementation of KM in higher education. Their findings showed that technical infrastructure, strategic approach, knowledge infrastructure, incentive training, KM culture, senior management support, core values, KM work processes, learning process, are the major factors that support the implementation of KM. A review study (Nasiruzzaman and Dahlan, 2013) was conducted to extract the factors that could influence the implementation of KM in Higher Education Institutions. This study found that strong leadership, robust ICT infrastructure, procurement of proper knowledge and practices and value-based organization are the main factors that influence successful implementation of KM. Another recent review study conducted by Attallah *et al*. (2015) investigates the success factors of KM implementation in Higher Educational Institutions. This study proposed five constructs to influence the success of KM implementation in educational institutes which are: the strategy of the organization, culture, ICT infrastructure, systematic process and reward.

Table 1 presents a literature survey of the factors that influence the success of KM in business organizations, healthcare and education institutions.

Based on above discussion, there is a lack of models that investigate empirically the success factors

Table 1: Literature survey of KM success factors

Author/Year	Description	Findings
Hasanali (2002)	A literature review study to identify the most critical success factors in organizations.	These factors can be categorized into five categories including: leadership, culture, structure, IT infrastructure and measurement.
Wong (2005)	Key success factors for implementing KM in small and medium enterprises based on literature review	A new conceptual model was developed. They proposed a list of 11 critical factors that could influence the success of implementing KM. These factors are management and leadership support, culture, information technology, strategy and purpose, measurement, infrastructure, processes and activities, motivational aids, resources, training and education and human resource management.
Jennex and Olfman (2005)	Developing a model of KM success in engineering organizations based on literature and observation.	A new conceptual model was proposed. They assumed that system quality, knowledge quality and service quality could influence both user satisfaction and user intention to use a system which in turn influence the net benefits of KM.
Akhavan *et al*. (2006)	The study identified the key success factors of KM by extracting data from business organizations including: Ernst & Young, HP, Microsoft, Siemens, Teltech, Business Edge Solutions.	The findings of this study indicate that knowledge strategy, training programs, CEO support and commitment, business process reengineering, network of experts, knowledge sharing, organizational culture, pilot, knowledge storage, knowledge audit and knowledge architecture are the most effective factors that influence the KM success in business organizations.
Basu and Sengupta, (2007)	A case study to identify the success factors of KM implementation in Indian Universities	The findings showed that ICT infrastructure, culture, motivation and senior management attitude are the success factors of KM implementation in Indian universities
Ali *et al*. (2009)	Success model for KM in health care	A conceptual model was developed proposing that KM use for sharing and retrieval is influence by many factors such as perceived usefulness of KMS, user satisfaction, security, subjective norm, culture, knowledge content quality, KMS quality, leadership and incentives.
Lindner and Wald (2011)	The study seeks to examine a set of variables to identify the most influential factors that affect the success of business organizations. 414 organizations were included in the representative sample of this study.	The findings showed that knowledge culture, systematic processes, institutionalization, evaluation and controlling of KM, ICT support and management commitment are the most effective factors that influence the KM success and effectiveness.
Hameed and Badii (2012)	A descriptive study to find the factors that influence the proper implementation of KM in higher education	The findings of descriptive analysis showed that technical infrastructure, strategic approach, knowledge infrastructure, incentive training, KM culture, senior management support, core values, KM work processes and learning process are the main factors that support the implementation of KM.
Nasiruzzaman and Dahlan (2013)	A review study to extract the factors that could influence the implementation of KM in Higher Education Institutions	The study found that strong leadership, robust ICT infrastructure, procure proper knowledge and practices and value based organization are the factors that influence successful KM implementation.
Attallah *et al*. (2015)	A literature review study to investigate the success factors of KM implementation in Higher Education Institutions	The study proposed five constructs to influence the success of KM implementation in Higher Education Institutions. The strategies and the culture of the organizations are considered essential factors for KM success. In addition, ICT infrastructure, clear systemic process of acquiring, applying, utilizing and protecting knowledge are proposed to be critical influential factors that affect the implementation of KM.
Siadat *et al*. (2017)	An impact evaluation study was conducted to evaluate the impact of IT applications and infrastructure factor on the knowledge management performance using strategy performance management tool (Balanced Scorecard).	The study revealed a positive and significant direct impact of both IT applications and infrastructure on knowledge management.

of KM implementation in Higher Education Institutions. This study attempts to propose and test a model that reflects the success factors of KM implementation in Jordanian Higher Education Institutions.

RESEARCH MODEL AND HYPOTHESES

The research model comprises of determining the factors that influence the success of KM implementations in higher education institutions. Based on the objectives stated earlier and consistent with the related literature regarding IT acceptance, adoption and key success factors, a proposed theoretical model was developed as shown in Fig. 1.

Organizational culture: Organizational culture is defined as the degree to which organizational culture provides support for viewing knowledge as valuable assets and resources (Chang and Chuang, 2011). An

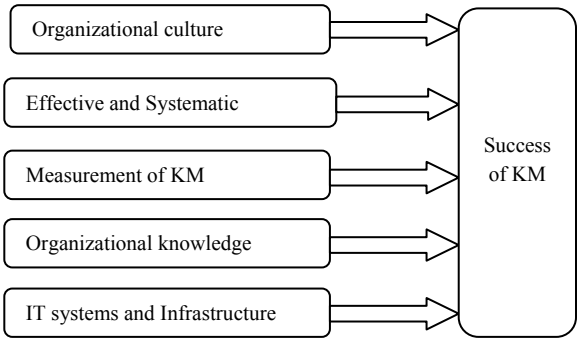

Fig. 1: Proposed research model

elementary success factor of KM is the creation and the promotion of the culture of knowledge sharing within the organization by articulating a corporate KM vision, rewarding employees for knowledge sharing, creating communities of practice and creating a best practices repository (Barna, 2003). Yu *et al*. (2004) highlighted the importance of organizational culture to the success of KM implementation. They stated that KM drivers such as the learning culture, knowledge management quality, knowledge sharing intention, rewards and knowledge management team activity significantly affected KM performance. Hasanali (2002) found that the organizational culture is a key factor for KM success in business organizations. Similarly, other researchers who performed case studies of business organizations found that the organizational culture has a strong influence on the success of KM implementation (Wong, 2005; Akhavan *et al*., 2006; Lindner and Wald, 2011).

In the context of higher education, Ali *et al*. (2014) stated that the commitment of leaders, provision of incentives, promotion of knowledge sharing culture and high quality of KM may contribute to successful implementation of KM in higher education institutions (Ali *et al*., 2009). The findings of the case study which was performed by Basu and Sengupta (2007) indicated that culture is a key factor for KM success in higher education. Also, similar findings were derived from the study that conducted by Hameed and Badii (2012). Culture is expected to influence the success of implementing KM at higher education in Jordan. Therefore, the following can be hypothesized:

H1: Organizational culture has a positive effect on the success of KM implementation in Jordanian Higher Education Institutions.

Processes: Processes take over tasks of routines as means of knowledge integration (Grant, 1996). Processes support the transformation of temporary knowledge into permanent knowledge by turning tacit (implicit) knowledge into codified (explicit) knowledge. This knowledge can later be retrieved and used in subsequent projects. A prevalent tool supporting this transformation is dedicated lesson-learned procedures like regular workshops (Lindner and Wald, 2011). Managing and documenting personal lessons learned and tacit knowledge have also positive effects for individuals since it motivates and amplifies processes of learning (Hansen, 1999). Gold *et al*. (2001) stated that in order for the organization to increase the effectiveness of KM, they have to master the processes of knowledge acquisition, conversion, application and protection. Other studies have investigated the critical success factors in business organizations. They found that processes are important to ensure the success of KM implementation (Wong, 2005; Akhavan *et al*., 2006; Lindner and Wald, 2011). Hameed and Badii (2012) studied the effects of KM work processes in higher education and found that there is a significant effect of the processes on the success of KM implementation. Based on the above, our study expects a positive effect of processes on the success of KM implementation at higher education in Jordan. Therefore, the following can be hypothesized:

H2: Processes have a positive effect on the success of KM implementations in Jordanian Higher Education Institutions.

Measurement of KM: In order to successfully implement KM, the success or the effectiveness must be measured (Jennex and Olfman, 2005). Turban *et al*. (2001) pointed out that there are three main reasons for an organization to measure the success of KM. These reasons include organization valuation, identifying important issues and justification of the investment on KM activities. Academics and practitioners of KM described the measurement of KM effectiveness or success as crucial to understand how the KM systems should be built and implemented (Jennex and Olfman, 2005). Hasanali (2002) described measurement as one of the most effective factors for the success of KM implementation. Similarly, Wong (2005) derived similar results based on his literature review study. In Higher Education Institutions, a study conducted by Al-Oqaily *et al*. (2014) examined some factors that influence KM implementation in Jordanian universities. The findings of this study showed that knowledge measurement is an important factor for successful KM implementation since it can be used to evaluate the knowledge resources within universities. Therefore, the following can be hypothesized:

H3: Knowledge measurement has a positive effect on the success of KM implementations at Jordanian Higher Education Institutions.

Organizational knowledge: The growth of knowledge within the organization is one of the most important

issues that must be dealt with (Yaghoubi and Maleki, 2012). Voelpel and Dous (2006) mentioned that there is a general old saying in German business "If Siemens only knew what Siemens knows, it would be a rich company". This saying highlights the importance of the organizational knowledge and the need to manage and protect this knowledge (Voelpel and Dous, 2006). Jennex and Olfman (2005) investigated the role of knowledge quality in KM success. Akhavan *et al*. (2006) mentioned that both the knowledge strategy and the training program have a vital role in the success of KM in organizations. Al-Oqaily *et al*. (2014) pointed out that organizational knowledge factor influences the effectiveness of implementing KM in Jordanian universities. Based on above, it can be hypothesized the following:

H4: Organizational knowledge has a positive effective role in the success of KM implementations in Jordanian Higher Education Institutions.

IT Systems and infrastructure: IT systems and infrastructure are very important factors for the effectiveness of KM (Gold *et al*., 2001). It can include a variety of facilities and networks such as Internet, intranet and extranet which facilitate the knowledge sharing among the organizational members (Hasanali, 2002). Wong (2005) found a strong relationship between infrastructure and KM success in Small and Medium-sized Enterprises (SMEs). In educational institutions, Ali *et al*. (2014) stated that IT infrastructure enables sharing of knowledge among employees and have a potential contribution towards efficient and effective knowledge management in Malaysian universities (Ali *et al*., 2014). Basu and Sengupta (2007) found that infrastructure is a key success factor of KM in Indian universities. Similarly, the study of Hameed and Badii (2012) pointed out that infrastructure is a very important factor for the success of KM in higher education. Nasiruzzaman and Dahlan (2013) in their literature review study stated that robust ICT infrastructure is essential for the success of KM implementation in Higher Education Institutions. Based on these findings, the following can be hypothesized:

H5: IT systems and infrastructure have a positive effect on the success of KM implementations in Jordanian Higher Education Institutions.

RESEARCH METHODOLOGY

In this study, we employed a quantitative methodology to present the statistical findings related to the scope of this study via empirical investigation of the achieved statistics. The questionnaire consists of three sections. The first section is where respondents are asked to provide details about demographic information. The second section determines the perception of the factors that can influence KM success. The last section assesses the perception of KM success. The instrument was utilized to collect data using a five-point Likert scale and the existing constructs of this study were adapted with some modifications to fit the context of this study, as follows: Organizational Culture was adapted from (Donate and Guadamillas, 2010), Effective and systematic processes from (Mathi, 2004), Measurement of KM from (Al-Oqaily *et al*., 2014), Organizational knowledge from (Mathi, 2004), IT systems and Infrastructure from (Mousa and Mahfouz, 2015) and Success of KM from (Khalifa and Liu, 2003). The questionnaire was translated into Arabic language using back translation technique (Brislin, 1970) in order to help the respondents to understand the research topic.

A pilot study was conducted at Al-Ahliyya Amman University. This small-scale preliminary study conducted in order to gather information to improve the developed instrument if needed. At the beginning, the instrument was tested on 34 academic and non-academic staff and their feedback comments were collected. After that, these comments were used to improve the developed instrument.

The target population of this study consists of both academic and non-academic staff working in private universities environments in Jordan. A total of 324 respondents involved in conducting Self-administered questionnaires. A total of 233 complete and usable responses were received which produced an acceptable final response rate of 72%.

In order to answer the research questions, SPSS version 22.0 was employed to conduct statistical analysis. Descriptive analysis was employed to find the descriptive information of the respondents. Reliability analysis was used to find the Cronbach's Alpha of the scales. Lastly, the correlation and regression analysis were employed to test the hypotheses.

DATA ANALYSIS AND RESULTS

Data reliability and validity: To confirm the reliability and validity of the instrument, Coefficient alpha is the most frequent method used for calculating internal consistency estimation of the reliability of dependent and independent variables of this study (Hogan *et al*., 2000; Cortina, 1993; Peterson, 1994). The coefficient Alpha needs to be more than 0.7. Table 2 shows the values of Cronbach's alpha for the variables. In terms of validity, convergent and discriminant validity tests were performed. Convergent validity can be evaluated based on the investigation of factor loadings that should be beyond the threshold of (0.7) as recommended by Campbell and Fiske (1959). The principal components analysis with Varimax rotation was conducted in order to determine the factor loadings for each item. If the item has loadings less

Table 2: Measurement items, factors and their statistic

Factors	Items	Factor loadings (>0.7)	Alpha ($\alpha \geq 0.70$)
Organizational culture	C1	0.798	0.72
(C)	C2	0.802	
	C3	0.808	
	C4	0.825	
	C5	0 .642 (Deleted)	
	C6	0.829	
	C7	0.658 (Deleted)	
	C8	0.834	
Effective and systematic	P1	0.865	0.82
processes	P2	0.871	
(P)	P3	0.863	
	P5	0.869	
	P6	0.873	
Measures of knowledge	M1	0.866	0.74
Management	M2	0.867	
(M)	M3	0.878	
	M4	0.884	
	M5	0.889	
Organizational knowledge	O1	0.856	0.84
(O)	O2	0.842	
	O3	0.858	
	O4	0.855	
	O5	0.874	
IT Systems and Infrastructures	IT1	0.901	0.89
(IT)	IT2	0.903	
	IT3	0.898	
	IT4	0.896	
KM Success	KMS1	0.833	0.78
(KMS)	KMS2	0.826	
	KMS3	0.841	

Table 3: Discriminant validity

Construct	C	P	M	O	IT	KMS
C	1					
P	0.432	1				
M	0.462	0.463	1			
O	0. 523	0. 474	0. 659	1		
IT	0. 531	0. 514	0. 423	0.472	1	
KMS	0.593	0. 732	0. 611	0.524	0.782	1

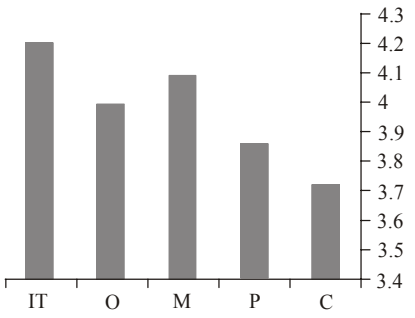

Fig. 2: Mean values of success factors of KM

than 0.7, it should be removed from the structure of the construct. The results in Table 3 indicated that two items (C4 and C7) were removed from organizational culture factor because the value of factor loadings is less than 0.7. The other items loaded on the appropriate factor with loadings above 0.7.

Discriminant validity test estimates the degree of correlation between two constructs of the same trait. Thus, if the degree of correlation is weak, this refers that each construct is matchless and measures different dimensions (Campbell and Fiske, 1959). Discriminant Validity was performed using the correlation matrix approach. As portrayed in Table 3, the results of discriminant validity analysis demonstrate that all the off-diagonal values for all constructs are less than 0.85 as suggested by Bontis (1998).

Therefore, the results support both the reliability and the validity of the constructs in the research model that may contribute to the success of KM implementation in Jordanian universities.

Descriptive analysis: Descriptive statistics analysis was performed for all items in terms of their mean, standard deviation and skewness and kurtosis for testing the normality of data. The results showed that the mean value ranged from (3.72) to (4.20) on a five-point scale. This value indicates that most of the staff are satisfied with the items of success factors of KM as shown in Fig. 2.

The results of the descriptive statistics confirmed that the value of the standard deviation ranged from (0.093) to (1.04) which indicates that the values were

Table 4: Background information of respondents

Label		Frequency	%
Gender	Male	161	69.0
	Female	72	31.0
Education	Diploma	21	9.0
	Bachelor	156	67.0
	Master	35	15.0
	PhD	21	9.0
Work Experience	Less than 2 Years	16	7.0
	2-4 Years	28	12.0
	5-7 Years	72	31.0
	More than 7 Years	117	50.0

acceptable and the normality distribution of the data was sufficient because the values ranged between -1 and +1 according to skewness and kurtosis assumption. Table 4 presents the demographic information of the respondents. It is quite clear that out of the total respondents who are investigated for this study, overwhelming majority (69%) of them were males whereas about 31% were found to be females. Also, the majority of the respondents (67%) hold a bachelor's degree, while 15% have master's degree and 9% have Ph.D. degree. The majority (50%) of the respondents have more than seven years of work experience, while 31% have work experience from five to seven years and 19% of the respondents have less than four years of work experience.

Hypothesis testing: Correlation analysis: The main purpose of this study is to test the hypotheses. Five hypotheses were developed based on the literature. Pearson correlation was used to assess the strength of correlation between the variables in the hypothesized relationship. Table 5 shows the result of hypotheses testing using correlation analysis.

As shown in Table 5, the results show that the five hypotheses demonstrated a significant positive relationship between the variables, thereby supporting the hypotheses.

Hypothesis testing: regression analysis: In this study, 5 hypotheses were tested by using regression analysis in order to investigate the factors that influence the success of KM implementation in Jordanian higher education institutes. Also, there is one dependent variable which is knowledge management success. Thus, multiple regression analysis (Gefen *et al*., 2000) is a powerful technique used to test the proposed hypotheses and the proposed model of this study. The proposed model was tested by multiple regression analysis between knowledge management success as the Dependent Variable (DV) and organizational culture, processes, measurement, organizational knowledge and IT systems and infrastructures as independent variables. As shown in Table 6, the results show that knowledge management success was significantly impacted by organizational culture (H1, β = 0.253, p>0.05), effective and systematic processes (H2, β = 0.361, p>0.01), measures of knowledge management (H3, β = 0.243, p>0.05), organizational knowledge (H4, β = 0.112, p>0.05) and IT systems and infrastructures (H5, β = 0.812, p>0.001). Furthermore, the value of R^2 for the knowledge management success as a DV is 0.875; this means that organizational culture, effective and systematic processes, measures of knowledge management, organizational knowledge and IT systems and infrastructures within the proposed model are capable of explaining 87.5% of the variance in the knowledge management success. Thus, the regression model supports all hypotheses in this study.

DISCUSSION

The results of this study indicate that the culture of the university has a positive and strong effect on the success of KM implementations. This indicates that the first hypothesis (H1) of this study is supported. This finding agrees with the findings of other researchers. Ali *et al*. (2014) considered that shifting from "my knowledge" to "our knowledge" culture is a key success factor for KM implementation. Findings of other researchers such as Basu and Sengupta (2007) and Hameed and Badii (2012) showed a significant effect of culture on the successful implementation of KM in Higher Education Institutions.

In this study, the analysis revealed that processes of KM have a positive and significant effect on KM successful implementation. These results support the

Table 5: Summary of correlation hypothesis test

Hypotheses				Correlational value	Results
H1	C	→	KMS	0.593**	Support
H2	P	→	KMS	0.732**	Support
H3	M	→	KMS	0.611**	Support
H4	O	→	KMS	0.524**	Support
H5	IT	→	KMS	0.782**	Support

Table 6: Summary of regressions hypothesis test

Model 1	Beta (β)	Sig. (ρ>0.05)	Supported or not
Organizational culture	0.235	0.045	Support
Effective and systematic processes	0.361	0.009	Support
Measures of knowledge management	0.243	0.031	Support
Organizational knowledge	0.112	0.039	Support
IT systems and infrastructures	0.812	0.000	Support

second hypothesis (H2) of this study. In agreement with this finding, Gold *et al*. (2001) viewed processes as tools to enable the organization to increase the effectiveness of KM. The findings of other researchers pointed out that the processes are essential for the success of KM implementations in Higher Education Institutions (Hameed and Badii, 2012; Al-Oqaily *et al*., 2014).

Also, this study showed that measuring KM implementations at universities has a positive and significant effect on the success of KM. This indicates that the third hypothesis (H3) of this study is supported. This finding is along the line of the findings of other researchers who also investigated the effect of knowledge measurement on KM success. For example, Al-Oqaily *et al*. (2014) stated that knowledge measurement is important tool to evaluate the knowledge at universities. They found that knowledge measurement significantly influences KM success in Jordan. Others such as Wong (2005) and Hasanali (2002) described knowledge measurement as a key factor for the success of KM.

The fourth hypothesis of this study was found a significant and positive. The results showed a significant and positive impact of the organizational knowledge on KM success which leads to the acceptance of H4. We have noted that this finding is similar to the findings of other researchers who investigated KM success factors. Jennex and Olfman (2005) highlighted that the quality of organizational knowledge has a strong impact on KM success. KM strategy and training inside the organization were considered important determinants of KM success (Akhavan *et al*., 2006). In the context of Higher Education institutions, Al-Oqaily *et al*. (2014) found that organizational knowledge affects the success of KM in Jordanian universities.

The last hypothesis (H5) of this study assumes a significant relationship between IT systems and infrastructure and KM success. The results yielded a significant positive effect of IT system and infrastructure on KM success. Therefore, the fifth hypothesis (H5) is supported. Moreover, IT systems and infrastructure is the strongest predictor of KM success. The findings of other researchers were consistent with our results. For example, Hasanali (2002) and Wong (2005) found a strong association between infrastructure and KM success. Ali *et al*. (2014) highlighted the importance of IT infrastructure to enable knowledge sharing among organizational members. Also, Basu and Sengupta (2007) and Hameed and Badii (2012) described IT infrastructure as an important factor for KM success in Higher Education Institutions.

CONCLUSION AND RECOMMENDATIONS

This study has investigated the factors that influence the success of KM Implementations in Higher Education Institutions in Jordan. Data was collected from both academic and non-academic staff members who work in private Jordanian universities. A total of 233 complete and usable questionnaires were received from the respondents which produced an acceptable response rate of 72%. The results of this study showed that IT infrastructure was the greatest predictors of the success of KM implementation followed by processes, measurement, culture and organizational knowledge.

The importance of KM cannot be overstated. KM is a tool that enables organizations including universities to create a competitive advantage. Universities have to invest heavily to promote a culture of knowledge sharing. Events such as workshops and seminars must be held periodically to assess the KM in the universities and to share the knowledge between the organizational members. Sharing the knowledge would not be possible without having proper IT infrastructure. Thus, universities are recommended to provide tools for communications and connectivity between its members to promote activities related to knowledge management and cooperation among its members.

As a limitation of this study, the study included only private Jordanian universities. It is recommended for future work to include public universities in Jordan. The participation of both private and public universities can be better option to generalize the results of the study. Furthermore, the literature revealed that most of the studies that have investigated the factors that influence KM success are quantitative in nature. Therefore, it is recommended for future research to conduct empirical studies in this field, use qualitative research methodology and use focus group or interviews to discover the factors that influence KM success in Higher Education Institutions.

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