International Journal of Commerce and Management Research
ISSN: 2455-1627, Impact Factor: RJIF 5.22
www.managejournal.com
Volume 2; Issue 5; April 2016; Page No. 55-62

Measuring knowledge management maturity at HEI to enhance performance-an empirical study at Al-Azhar University in Palestine

[1] Samy S Abu Naser, [2] Mazen J Al Shobaki, [3] Youssef M Abu Amuna
[1] Faculty of Engineering & Information Technology, Al-Azhar University, Gaza, Gaza-Strip, Palestine.
[2] Faculty of Engineering & Information Technology, Al-Azhar University, Gaza, Gaza-Strip, Palestine.
[3] Faculty of Engineering & Information Technology, Al-Azhar University, Gaza, Gaza-Strip, Palestine.

Abstract
This paper aims to assess knowledge management maturity at HEI to determine the most effecting variables on knowledge management that enhance the total performance of the organization. This study was applied on Al-Azhar University in Gaza strip, Palestine.
This paper depends on Asian productivity organization model that used to assess KM maturity. Second dimension assess high performance was developed by the authors. The controlled sample was (364). Several statistical tools were used for data analysis and hypotheses testing, including reliability Correlation using Cronbach's alpha, "ANOVA", Simple Linear Regression and Step Wise Regression.
The overall findings of the current study suggest that KMM is suitable for measuring and lead to enhance high performance. KMM assessment shows that the university maturity level is in level three. Findings also support the main hypothesis and it is sub-hypotheses. The most important factors effecting high performance are: Processes, KM leadership, People, KM Outcomes, Knowledge Process. Furthermore the current study is unique by the virtue of its nature, scope and way of implied investigation, as it is the first study at HEI in Palestine explores the status of KMM using the Asian productivity model.

Keywords: Knowledge Management, KM Maturity, Enhance Performance, Higher Educational Institutions, Asian Productivity Model

1. Introduction
Knowledge management in educational institutions is the main aim of those organizations, where they produce and manage knowledge through human activities and technical practices to link individuals from various administrative levels and sections.
This process establishing working groups and trust relationships which produce share and exchange of knowledge they own, support individual and collective learning processes, and then improve and develop individual and organizational performance**.**
Measuring knowledge management maturity is an important process and should not be overlooked simply by knowledge management processes. The purpose of the measurement should be clear and within correct criteria based on successful experiences with the ability to identify knowledge gaps that must be remedied in order to take full advantage of the knowledge, followed by procedures to improve performance and efficiency to meet future challenges and achieve outstanding performance [26, 41].
The objective of this study is to examine the validity of the Asian productivity model in measuring knowledge management maturity in HEI. Also the study aims to define KMM level in HEI to encourage them moving to a higher level. This leads to high performance for individuals and organization.
The literature reveals that although this topic has received much attention, in general, the studies concentrate on KM implementation. Many different attempts to standardize a common model have been done, but knowledge management maturity still a concept needs a standard framework to imply in HEI.
The current study draws on the literature to explore this topic in depth and then turns to an implied investigation to assess the extent to which the model is accurate and determine the most influential variables.
In view of the literature review, the study raises the question of*:*
Q1. What are the most influential factors on HEI performance resulting from knowledge management maturity?
Q2. How to link knowledge management maturity with performance and benefit from it for future performance improvements?
As for originality, the current study is unique by the virtue of its nature, scope and way of implied investigation, as it is the first study at HEI in Palestine explores the status of KMM using the Asian productivity model.

1.1 Literature review:
1.1.1 Knowledge management in HEI
The Higher Education Institutions (HEI) is a cognitive intensity institutions where the primary function is based on knowledge, production of knowledge, documentation and publishing. There is a growing belief that knowledge management in educational institutions help build the future of a dynamic learning environment, development and improvement of the efficiency activities of knowledge sharing and improve the overall performance of the organization [1, 2, 24, 49,].

Ramachandran *et al*. defined KM in HEI as "Systematic attempt to develop and implement knowledge practices in higher education institutions with the support of major strategic assistance factors [40]. Also defined by Petrides and Nodine as A frame or a way for individuals working in the educational institution to develop a set of practices to gather information and share what they know, which resulting in behaviors or actions that will improve the level of services and products offered by the educational institution"[34].

Laal defined it as "the process of converting information and intellectual assets to a continuing value that connect individuals with the knowledge they need to take action when they need it [25].

According to previous definitions, KM in HEI is similar knowledge management in industrial organizations or services, in terms of operations and activities, with a focus on the link between individuals and management to enhance the quality of outputs and achieve a competitive advantage in performance and outputs. HEI offer their services primarily to the community, and represents members of the community the main beneficiaries of HEI. Researchers identified the most reasons why HEI environment is the most suitable to adopt KM: The existence of technology infrastructure, confidence and knowledge sharing is normal in HEI and students enroll in a college to access to knowledge [1, 12, 14, 22, 28, 44,].

1.1.2 Critical factors for KM in HEI

The most critical variables that has an effect on sharing knowledge in HEI are benefits and rewards [48]. While the research about this still few, His lop suggests that the issues that concern to the staff regarding to assessment of advantages and disadvantages of sharing knowledge [16]. Benefits can be real rewards which improve the organization's performance and stability. It will be a big mistake when participation "is likely to" lead to abandonment of a source of strength and experience to others. While Rahman *et al*. and Bock *et al*. pointed that social sharing benefits cannot be estimated quantitatively, instead it is a personal commitment, trust and gratitude [7, 39].

Leadership style is another important factor which play a pivotal role in promotion and development of knowledge exchange behavior, by contributing in experiential learning for employees, providing opportunities for managing operations, development information technology systems, rewards and opportunities and interaction systems [41, 42, 43, 48, 53,].

The role of the leader can be completely different in the educational institutions where there are two types of leadership. First type is academic leadership which is interested in highlighting the knowledge, professional cognition, experience, personal qualities and teams. The second type is hierarchical management leadership with features such as: work, responsibilities, control and give power to position rather than ability. Significant tensions can exist when people with administrative capacity control the academic environment [11].

There is a big debate about the role of culture in educational institutions in the field of knowledge management and exchange [10, 26, 30, 41, 43, 48,]. For example, (Cronin) discussed contrast between the existence of company's cultures such as HP Computer Inc. "The HP Way" and the lack of any global culture like this in an educational institution [11]. Also (Lee) pointed that academic departments are complex and cultures may be different between departments in various disciplines [10]. The fact that remains dominant here is that the academic community have a culture of participation more than other forms of organizations and that cooperation is the essence of knowledge management [37].

Another important factor is organizational structure [10, 26, 41,]. The structure of educational institutions differ significantly from other organizations. This structure may be a major obstacle for the exchange of knowledge, as the physical and psychological barriers may be other obstacles which can lead to individualism. For that reason, organizational structure should be flexibly designed to encourage participation and cross-border cooperation within the organization. The combination between formal organizational structure and non-hierarchical structure improve generate and knowledge sharing [9, 41, 48].

1.1.3 High performance in HEI

The educational institutions are service organizations providing education and knowledge to students and conducting scientific research. They are also responsible for providing the society with qualified people for jobs, so they deliberately to achieve high performance in their activities by teaching process. Teaching process represents the intellectual capital for a variety of activities characterized by mental and intellectual nature and a host of other traditional activities.

This performance measured by many excellence models such as BSC, Malcolm Baldrige American model, European model and Canadian model [3]. Those models depend on several criteria, leadership, strategic planning, customer orientation, KM, human resource, operations Management and the outcomes.

Also the scales might be financial or non-financial. Lee and Teseng pointed that financial scales connected directly with long term objectives, measuring the success of strategic plans and the ability to adapt with changes in external environment. Financial scales consist of ROI, sales growth, income before taxes, net profit, ROA….etc. [27].

While operational scales provide a hidden image for performance such as new products, product quality, market share, innovation, customer retention, social responsibility [8, 38].

Al-hady defined high performance in HEI The performance that helps in achieving strategic objectives and effectiveness according to quality scales. KM can improve this performance in high rates [34, 47].

These researchers [1, 5, 14, 29,] mention the main fields of high performance in HEI:

- **Reduce costs and increase profits**: Educational institutions seeking to cut costs by reducing the costs of services provided to students and the level of operational and administrative costs of operations, leading to an increase in profits.
- **Improve Quality**: The overall quality management approach depends on the joint efforts by which the participation of all individuals on an ongoing basis to improve the institution's performance.
- **Scientific research**: Scientific research in educational institutions is the key element of performance excellence, which helps in the advancement of professional practice

and gain the confidence of the industry, and demonstrates the intellectual contributions of the faculty member.

- **Community Service**: It is an essential element in evaluation process of high performance that clarifies the role of the institution in civil society service and its contribution to solving its problems.

1.1.4 Knowledge management maturity

Knowledge management maturity determines the level of organization existing capacity affecting on knowledge management processes, where every organization particular track a special sequence of maturity. Knowledge management maturity models describes the steps of growth, which is expected to be up to the organization to develop their knowledge management and organizational performance [23]. Also it determines the stages of institutional knowledge maturity, which is expected to pass by any institution on its way to improve their practices and competitive advantages, those institutions that rely mainly on innovation and dissemination of knowledge like HEI and thus improve the overall performance of the institution [46]. The maturity models describe the nature of things with the passage of time, such as development of knowledge management, what is necessary to move from a given level to another and stability at a certain level [20, 51].

O'Brien, Hoss and Schlussel determined the importance of KM measurement as follow [18, 32].

- Helps measure the institution to identify knowledge gaps they have.
- Determine the impact of knowledge gaps on the performance, growth and development of the institution.
- Helps to manage knowledge possessed by the organization more efficiently.
- Provides the enterprise with analytical tools works to promote knowledge and address gaps.
- Identify strategies and activities to fill those gaps in knowledge.

Asian productivity organization developed a model to measure KMM, designed after a study lasted for five months. This model have been adopted by the Asian Organization of Production (APO) to develop tools and knowledge management techniques. Working team consist of experts in knowledge management from Japan, Singapore, India, China, Malaysia, Thailand, Vietnam and the Philippines [51]. This model consist of a general framework for knowledge management, knowledge management tool and measuring tool to measure the maturity of knowledge management as shown in figure 1.

Fig 1: KM framework

This framework consists of a row of enablers for knowledge management, starting from the organization's mission and vision in the middle of the circle, which sets strategy and organization capabilities.

Then we move on to the second frame, which includes knowledge management processes and the factors that accelerate the processes of knowledge management like leadership, individuals, processes and technology. In the last phase, the results of using knowledge management represented by quality, productivity, profitability and growth of the organization.

The model defined seven fields to measure KM: KM Leadership, process, people, technology, knowledge process, learning and innovation and KM outcomes.

After measuring KM, the results showed on a radar chart identifying the areas that have strength and the areas that need improvement and the organization has an opportunity to improve them.

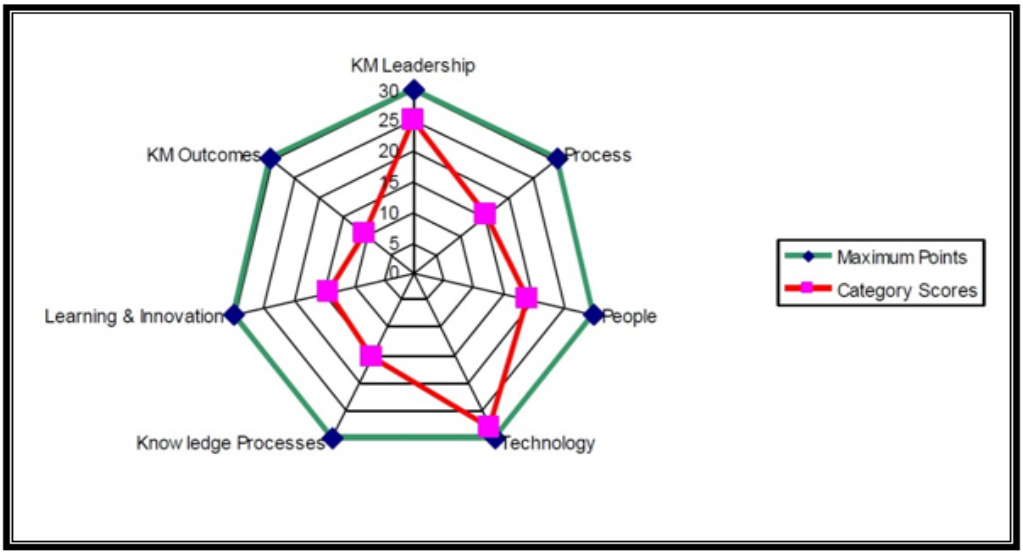

Fig 2: Radar Chart

The next step is to determine the level of maturity of knowledge management in the organization and comparing it with the maturity levels model.

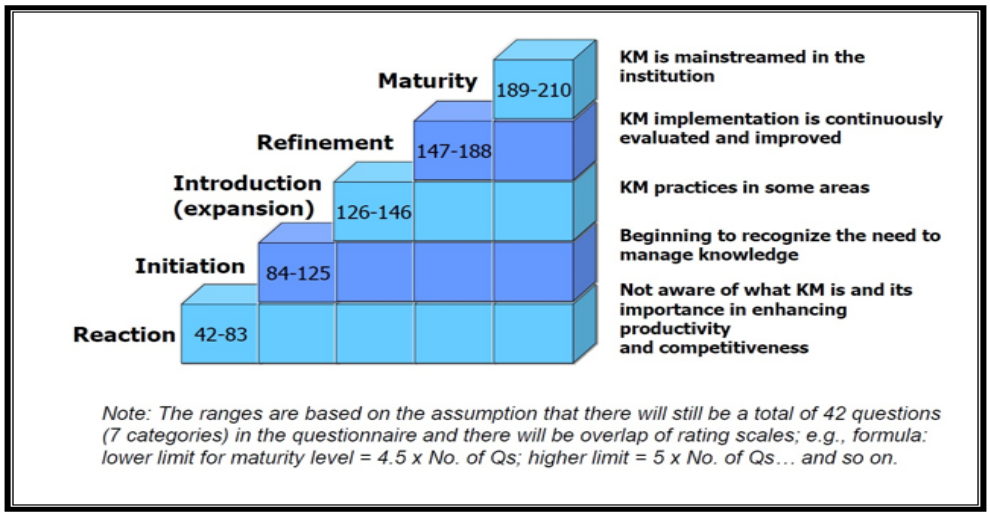

Fig 3: Maturity levels model

Knowledge management maturity consist of five levels is composed as follow:

1. Reaction: The organization is not interested in knowledge management and focused on enhancing productivity and competitiveness.
2. Initiation level: The organization begin to realize the need for knowledge management or has already begun in a pilot project for knowledge management.
3. Expansion: Knowledge management is fully applied.
4. Refinement: Organization evaluates knowledge management on an ongoing basis.
5. Maturity level: Knowledge management exist primarily as a driver in every organization's process.

1.1.5 KMM and high performance

Knowledge management is not the only factor affecting performance and output of the organization, but it is one of many factors. Factors enabling high performance are leadership style, strategic planning, measurement, analysis, knowledge management, customers oriented, human resource management and administrative processes [52].

In first or second level of maturity, KM operations are local and lead to focus on a particular section in the organization without a comprehensive strategy to support those efforts. Here we can say that the impact of KM processes is not dramatically evident on the organization's performance. Therefore we can say that the first and second level of knowledge management maturity levels represent normal performance [6].

When reaching level three and four, organization begin to integrate knowledge sharing and collaboration in its main operations and set resources for knowledge management. Employees in levels three and four using technology and standardized tools to capture, transfer, share and re- use of knowledge in the organization.

Finally, KMM at level five represent full integrated knowledge management operations and employees understand the role of

knowledge sharing and cooperation in improving the performance for individuals and organization. Such behavior supports creative activities, leads to better competitive advantages and enhance the value chain to customers and suppliers [19, 20, 23,].

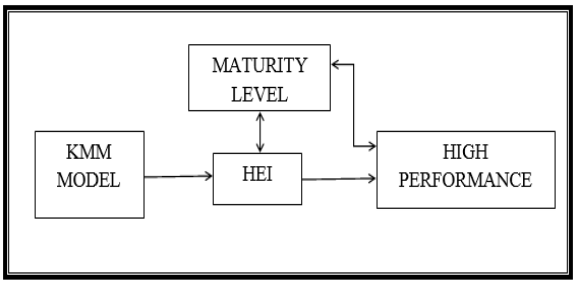

Fig 4: The conceptual framework

The relation between the model used in this study and high performance leads to the following main hypothesis in this study:

H1: There is a statistically significant effect for using the Asian knowledge model to measure HEI high performance.

As the previous model suggest, leadership plays a critical role in the success of KM implementation. If there is a strong commitment at executive management level to change the organizational culture, then the organization will be able to create the values that lead to knowledge sharing[1,4]. To achieve that, organization needs a leadership style able to manage organization elements to achieve the best and maximum advantage of the existing knowledge in organization to improve performance. Also the leadership need to link the mission and the vision and the objectives of the organization with knowledge management strategies. This leads to the following first sub-hypothesis in this study:

H1-1: There is a statistically significant effect for KM leadership on HEI high performance.

Operations are considered a complete knowledge inside organization. As value chain reflect how far can organization add value in each production step to achieve organizational efficiency and increase performance [23, 33]. This leads to the following second sub-hypothesis in this study:

H1-2: There is a statistically significant effect for operations on HEI high performance.

Many KM research confirmed individual's impact on high performance. These authors [1, 23, 37, 41,]. explained that individuals motivations and method of interpretation, transfer and implementation of knowledge management processes influence greatly in determining the shape and nature of knowledge and how to manage it. Therefore, individual is the most powerful element of an effective knowledge management implementation. This leads to the following third sub-hypothesis in this study:

H1-3: There is a statistically significant effect for people on HEI high performance.

New technology plays a major role in performance improving by providing the right information at the right time and using them to rationalize decisions. Add to that technology needed to enhance sharing knowledge and learning inside organization. The integration between knowledge and organizational process enhance performance and competitive advantages [22, 23, 35,]. This leads to the following forth sub-hypothesis in this study:

H1-4: There is a statistically significant effect for technology on HEI high performance.

Knowledge process like generation, storage, distribution and implementation facilitates work within the organization. The presence of a specialist team to capture knowledge and encourage workers to invest and participate it, with the existence of an effective leadership leading those operations to bring harmony between them reduce the total cost of work and increase financial returns for organization. This leads to achieve creativity, innovation and high productivity [5, 24, 50, 53,]. This leads to the following fifth sub-hypothesis in this study:

H1-5: There is a statistically significant effect for Knowledge process on HEI high performance.

Hila and Sangjae discussed learning and creativity in organization. Modern organizations characterized with continuous learning and applying the gained experience in their daily routine. Organizations seeking to recruit the experience gained from learning process in continuous performance development [15, 43,]. This leads to the following sixth sub-hypothesis in this study:

H1-6: There is a statistically significant effect for learning and innovation on HEI high performance.

KM outcomes must reflex on effectiveness and efficiency inside the organization. This leads to high performance at individual level and organizational level [23, 24, 41,]. This leads to the following seventh sub-hypothesis in this study:

H1-7: There is a statistically significant effect for KM outcomes on HEI high performance.

Other authors and KM experts added other variables and suggested new models which are more manifold. Those models included the pervious variables and variables like intellectual capital, agility, training and cultural capital [21, 36, 45,]. As established earlier, the current study examine the validity of the Asian productivity model for measuring KMM at HEI.

2. Research design

2.1 Study population and sampling

This study conducted at Al-Azhar University in Gaza Strip – Palestine. The university is highly reputable one, first one in Gaza which established in 1991. The population are (456) employees, the control sample (364). The usable sample was (298), which makes the response rate (63%).

2.2 Research instrument:

The first dimension referring to the model used in the study, is a prepared in advance questionnaire by the Asian productivity organization (KM Assessment Tool). This tool contain seven audit criteria categories. The second dimension of the instrument which measure high performance in HEI was developed by the current authors with the help of other research literature [1, 5, 29, 50,]. These statements were further revised and modified by experts in a subsequent stage before drafting the final version of the questionnaire.

A five-point Lekert scale of agreement was used for measurement, running from "Strongly Agree" to "Strongly Disagree", with a Neutral category for scale midpoint.

Table 1: Research instrument

Dimension 1: (Ind. V.) KM Assessment Tool	No. of statements	Dimension 2: (D.V.) High performance in HEI	No. of statements
Cat 1.0: KM Leadership	6		16
Cat 2.0: Processes	6		
Cat 3.0: People	6		
Cat 4.0: Technology	6		
Cat 5.0: Knowledge Processes	6		
Cat 6.0: Learning and Innovation	6		
Cat 7.0: KM Outcomes	6		

2.3 Validity and reliability assessment

The study adopted Cronbach's α to measure the internal consistence reliability of the questionnaire. The results showed that Cronbach's α values for all dimensions were > (0.5). It indicated that the design of the questionnaire had a high internal consistency.

2.4 Statistical procedures

Several statistical tools were used for data analysis and hypotheses testing, including reliability Correlation using Cronbach's alpha, "ANOVA", Simple Linear Regression, OLS- Ordinary Least Squares and Step Wise Regression.

2.5 Data analysis and discussion of results

Simple linear regression and "ANOVA" tests were used to test hypotheses. Simple linear regression used to test whether there is an impact for one independent variable on a single dependent variable (High Performance). The results are shown in Table 2. The results of regression test indicate that sig. is less than (0.05) for all independent variables, which mean that there are significant statistically effect for independent variables on high performance.

Pearson coefficient and regression coefficient Signe for all independent variables was positive. This result means whenever the value of independent variables increase, there will be increase in performance.

Changes in the independent variable is responsible for the interpretation of a rate (r2) of all the changes that occur in performance, and there is a rate (100 - r2) due to other factors specific to the other independent variables and other factors not mentioned in the model, in addition to the random error.

The table reveals that the findings of Significance level are less than (0.05), which means that we can rely on the previous model and circulating the sample results on research community.

Therefore, the results of the analysis proved the existence of a relationship between the independent variable and the dependent variable, and each dimension in the independent variable effect individually on the dependent variable. Therefore, we accept the main hypothesis and it is sub-hypotheses

Table 2: Simple Linear Regression and "ANOVA"

Variable	Sig.	Decision at α = 0.05	Regression coefficient	Pearson coefficient r	signe	R2
KM Leadership	0.0	Significant	0.238	0.462	+	20.6%
Processes	0.0	Significant	0.262	0.473	+	21.8%
People	0.0	Significant	0.198	0.346	+	12.2%
Technology	0.001	Significant	0.194	0.204	+	5.3%
Knowledge Processes	0.017	Significant	0.132	0.161	+	4.9%
Learning and Innovation	0.0	Significant	0.197	0.247	+	7.4%
KM Outcomes	0.0	Significant	0.263	0.325	+	11.4%

Further analysis, using Step wise regression conducted to arrange the effect of each variable in the knowledge management maturity model on the dependent variable and excluding of other insignificant variables. Table 3. Shows that five variables were effecting significantly (Processes, KM leadership, People, KM Outcomes, Knowledge Processes) and two were not effecting (Learning and Innovation, Technology). The explanation for that is the effect for the five variables were very strong on high performance more than (Learning and Innovation, Technology) from the point of view of the sample.

Table 3: Step Wise R

Rank	Variable	T	Sig.	Decision at α = 0.05
1	Processes	3.5	0.001	significant
2	KM Leadership	2.88	0.004	significant
3	People	2.47	0.014	significant
4	KM Outcomes	2.24	0.025	significant
5	Knowledge Processes	2.21	0.043	significant
6	Learning and Innovation	0.705	0.48	insignificant
7	Technology	0.27	0.78	insignificant

According to the model, radar chart had been done by calculating the response of each paragraph in sub-domains rates as shown in Table IV. The total score was (133.14) which means that the university KMM is in level three (Expansion). University begin to integrate knowledge sharing and collaboration in its main operations and set resources for knowledge management. Employees in levels three using technology and standardized tools to capture, transfer, share and re-use of knowledge in the organization. In that level of maturity, university must expand here KM implementation to reach for level four where KM measuring is a continuous process.

Table 4: Radar Chart

No.	sub-domain	(5-30)
1	Leadership	24.62
2	Processes	26.71
3	People	18.82
4	Technology	15.94
5	Knowledge Processes	12.68
6	Learning and Innovation	16.39
7	KM Outcomes	17.98
Total (42-210)		133.14

3. Conclusion

The concept of KM implementation is already known in Palestinian universities. Many studies conducted on KM, but this is the first study measuring KM maturity concept on Palestinian universities using a model designed by top eight manufactory countries in Asia. The originality of study comes from being the first one as far as the author's knowledge that discuses KMM using a solid model. The overall findings of the current study suggest that KMM is suitable for measuring and lead to enhance high performance. KMM assessment shows that the university maturity level is in level three where knowledge sharing and collaboration is common.

Findings also support the main hypothesis and it is sub-hypotheses. The most important factors effecting high performance are: Processes, KM leadership, People, KM Outcomes, knowledge Process. Furthermore, the model effect totally on high performance.

One of the important limitation of this study that it was conducted in one Palestinian university Al-Azhar. To have more accurate results (to generalize the model), another assessment must be done in periodical schedule (6 months for instant) after implementing the improved process. Moreover, a comparison study between Al-Azhar and another HEI will be more reliability.

Authors recommend to adopt this model in HEI in Palestine as a benchmark for knowledge management maturity and develop the model within specific criteria which suit with the MOHE requirements for high performance in HEI.

4. References

1. Abu Galah, Abdul Rahman. The role of knowledge management in improving the quality of higher education institutions outputs (2013-2015)", unpublished PhD thesis, Sudan University of Science and Technology, Graduate School, Khartoum, Sudan. 2016.
2. Abu Naser S, Al-Dahdooh R, Mushtaha A, El-Naffar M. Knowledge Management in ESMDA: Expert System for Medical Diagnostic Assistance. AIML Journal. 2010; 10(1).
3. Al Mazroui, Bader. Build a model to achieve excellence in the performance of the security services," doctoral thesis unpublished, Naif Arab University for Security Sciences, Faculty of Graduate Studies, Department of Administrative Sciences, Riyadh, Saudi Arabia, 2010.
4. Al-Medalal, Abdalah. KM implementation in the Palestinian government institutions and their impact on the level of performance, unpublished MA Thesis, Islamic University, Faculty of Commerce, Gaza, Palestine, 2012.
5. Anzi, Saad, Abedi, Ali Kazim, Faik. The role of knowledge management in achieving outstanding university performance. Journal of Economic and Administrative Sciences, No. 15, the University of Baghdad, Baghdad, Iraq, 2009, 1-14.
6. APQC How Mature is Your KM Program? the international resource for benchmarks and best practices, Available, 2011. From: (http://www.apqc.org/km).
7. Bock G, Zmud R W, Kim Y, Lee J. Behavioral Intention Formation in Knowledge Sharing: Examining the Roles of Extrinsic Motivators, Social-Psychological Forces, and Organizational Climate, MIS Quarterly, 2005; 29(1):87-111.
8. Bolat T, Yılmaz O. The Relationship between Outsourcing and Organizational Performance, International Journal of Contemporary Hospitality Management, 2009; 21(1):7-23.
9. Chahal SS, Savita. Knowledge Sharing Among University Teaching Staff: A Case Study, Maharshi Dayanand University, Rohtak, India 2014, 1-8. Available online: (http://www.researchgate.net)
10. Cranfield D, Taylor J. Knowledge Management and Higher Education: A UK Case Study, the Electronic Journal of Knowledge Management. 2008; 6(2):85-100.
11. Fullwood R, Rowley J, Delbridge R. Knowledge Sharing Amongst Academics in UK Universities. Journal of Knowledge Management. 2013; 17(1):1-39.
12. Gad, AL-Rob, Sayyed. The management of universities and institutions of higher education, curriculum development and optimization strategies, Cairo: Dar modern writers, Egypt. 2010.
13. Hadi, Sharaf. Change the Arab higher education institutions towards quality management quality and performance excellence, Arabic magazine to ensure the quality of university education, No. 11, Sana'a, Yemen, 2013, 243-305.
14. Hannouna, Sami Al-Awadi, Rafat. Knowledge Management in Higher Education Institutions Forum, a paper presented to the Conference on e-learning and knowledge economies, Al-Quds Open University, Gaza, and Palestine, 2011, 0.1-27.
15. Hilah, Amal. Proposed Model for learning organizations as an entry point for institutional excellence, PhD thesis unpublished, Suez Canal University, Faculty of Commerce, Ismailia, Egypt. 2014.
16. Hislop D. Knowledge Management in Organizations, Oxford University Press, Oxford, 3rd Ed, UK. 2013.
17. Hoss R, Schlussel A. How Do You Measure the Knowledge Management (KM) Maturity of Your Organization? Metrics That Assess an Organization's KM State, 2009. USAWC, 1-24, Available From: (http://www.impactalliance.org).
18. Hoss R, Schlussel A. How Do You Measure the Knowledge Management (KM) Maturity of Your Organization? Metrics That Assess an Organization's KM State', USAWC. 2009, 1-24. Available From: (http://www.impactalliance.org).
19. Hubert C, Lemons D. APQC's Levels of Knowledge Management Maturity, 2010, 1-5. Available From: (http://www.apqc.org/km).
20. Hubert C, Lemons D. APQC's Levels of Knowledge Management Maturity, APQC, 2010, 1-5. Available From: (http://www.apqc.org/km).

21. Kamhawi E. Knowledge management fishbone: a standard framework of organizational enablers. Journal of Knowledge Management, 2012; 16(5):808-828.
22. Khairuddin, Camellia. e-governance as a tool to enable knowledge management, Unpublished MA Thesis, University of Mohamed Khedira, College of Business Economic Sciences, Biskra, Algeria, 2015.
23. Khatibian N, Pour T, Jafari H. Measurement of Knowledge Management Maturity Level within Organizations, Business Strategy Series, 2010; 11(1):54-70.
24. Khodaeea H, Omrani V, Hojjat Kazemi H, Tamar I, Allahyar Piri A. Investigating the effect of knowledge management on human resources productivity, Management Science Letters, 2016, 259-264.
25. Laal M. Knowledge Management in Higher Education, Procedia Computer Science, 2011. 3:544-549.
26. Lee C, Wong K. Development and Validation of Knowledge Management Performance Measurement Constructs for Small and Medium Enterprises. Journal of Knowledge Management, 2015; 19(4):711-734.
27. Lee Sh, Tseng P. The Effect of Knowledge Management Capability and Dynamic Capability on Organizational Performance. Journal of Enterprise Information Management, 2014. 27:1-43.
28. Mikulecka J, Mikulecky P. University Knowledge Management-Issues and Prospects, University of Hardec Karlove, Hardec Kralove, Czech Republic, 2005, 1-8.
29. Miller B. Assessing Organizational Performance in Higher Education, San Francisco: Jossey-Bass, Available, 2007. From: (cms.bsu.edu).
30. Mills A, Smith T. Knowledge Management and Organizational Performance: A Decomposed View. Journal of Knowledge Management, 2011; 15(1):156-171.
31. Marwa Sayyed. knowledge management as an input to enhance competitiveness, Unpublished MA Thesis, Banha University, Faculty of Commerce, Banha, Egypt, 2014.
32. O'Brien J. The Need for a Robust Knowledge Assessment Framework: Discussion and Findings from an Exploratory Case Study, Electronic Journal of Knowledge Management, 2013; 11(1):93-106.
33. Pedrona, Huda. Knowledge management as one of the basic pillars in the survival of business organizations and increase their efficiency, a paper presented the Fifth International Conference on Intellectual Capital in the Arab business organizations in the light of modern economies, Hassiba Ben Bu Ali University, Chlef, Algeria. 2011, 1-15.
34. Petrides L A, Nodine T R. Knowledge Management in Education: Defining the landscape, The Institute of Knowledge Management In Education, CA, USA, 2003.
35. Pircher R, Pausits A. Information and Knowledge Management at Higher Education Institutions", Management Information Systems, 2011; 6(2):8-16.
36. Piri M, Jasemi M, Abdi M. Intellectual capital and knowledge management in the Iranian space industries, the. Journal of information and knowledge management systems, 2013; 43(3):341-356.
37. Qlbo, Hasina. The role of knowledge management to improve corporate performance, Unpublished MA Thesis, University of Mohamed Khedira, College of Business Economic Sciences, Biskra, Algeria, 2016.
38. Ragab M, Arisha A. Knowledge Management and Measurement: a Critical Review, Journal of Knowledge Management, 2013; 17(6):873-901.
39. Rahman M, Osmangani M A, Daud N M, Abdel Fattah F. Knowledge Sharing Behaviors among Non-Academic Staff of Higher Learning Institutions, Library Review, 2016; 65(1/2):65-83.
40. Ramachandran Sh, Chong S, Wong K. Knowledge Management Practices and Enablers in Public Universities: A Gap Analysis, Campus-Wide Information Systems, 2013; 30(2):76-94.
41. Rivera G, Rivera I. Design, Measurement and Analysis of a Knowledge Management Model in the Context of a Mexican University, INNOVAR. Revista de Ciencias Administrativas y Sociales, 2016. 26:1-15.
42. Sandhu M, Jain K, Ahmad Ir Umi Kalthom bte Knowledge Sharing among Public Sector Employees: Evidence from Malaysia, International. Journal of Public Sector Management. 2011; 24(3):206-226.
43. Sangjae L, Byung G K, Hoyal K. An Integrated View of Knowledge Management for Performance. Journal of Knowledge Management, 2012; 16(2):183-203.
44. Sawi, Yasser. Knowledge management and information technology, Oman: Dar Al-Sahab. Jordan, 2007.
45. Seleim A, Khalil O. Understanding the knowledge management-intellectual capital relationship: a two-way analysis. Journal of Intellectual Capital. 2011; 12(4):586-614.
46. Sensuse D, Rohajawati S. Knowledge Management: Workshop APO Framework, IJCSI International. Journal of Computer Science Issues, 2013; 10(2):25-32.
47. Stankosky M. Creating the Discipline of Knowledge Management, Elsevier, 2011, 55.
48. Suleiman, Hisham. The relationship between knowledge management and organizational performance, Journal of Accounting and Management and Insurance, No. 76, Cairo University, Cairo, Egypt, 2010. 93-157.
49. Syysnummi P, Laihonen H. Top Management's Perception of Knowledge Management in a Vocational Education and Training Organization in Finland, International Journal of Educational Management, 2014; 28(1):53-65.
50. Yasiri, Akram al-Khafaji, Ali, Hussein, Zafar. The impact of knowledge management processes in strategic performance. Journal of the University of Babylon, Volume 20, Issue 1, Babylon University - Humanities, Babylon, Iraq. 2012, 54-69.
51. Young R. Knowledge Management Tools and Techniques Manual, Tokyo, Japan. 2010. Available From: (https://sites.google.com/site/apokmtools/home).
52. Zack M, Mckeen J, Singh S. Knowledge Management and Organizational Performance: An Exploratory Analysis, Journal of Knowledge Management. 2009; 13(6):392-409.
53. Znini, unique, Khamis, Miliana. The impact of knowledge management to raise the performance efficiency in business organizations, research presented the Fifth International Conference on Intellectual Capital in the Arab business organizations in the light of modern economies, Hassiba Ben Bu Ali University, Chlef, Algeria. 2011, 1-18.