



DUBAI BUSINESS SCHOOL

1<sup>st</sup> International Conference on Advances in Business, Management and Law (2017) Volume 2017

# Organizational Knowledge Systems Design & Implementation

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## Abstract:

This research paper aims to explain relationships of organization learning (OL), knowledge management (KM), talent management (TM) practices and organizational performance (OP) in order to have excellent understanding of the subject by using in-depth analysis of the extant literature. This research offers mechanisms for Organizational Knowledge Systems (OKS) that will help the entity to apply OKS. The research paper has created a complete mechanism of the OKS then tests the proposed model.

Keywords: Organization Learning, Knowledge Management, Talent Management and Organization Knowledge Systems.

<http://dx.doi.org/10.30585/icabml-cp.v1i1.22>



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Selection and Peer-review under the responsibility of the UNIVERSITY OF DUBAI - DUBAI BUSINESS SCHOOL - ICABML Conference Committee.

## I. INTRODUCTION

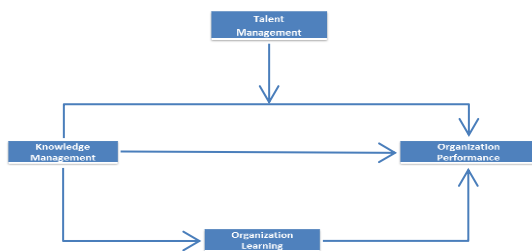
An OKS has been defined as a continuous process that occurs through KM and learning processes activated by employees (Alshehhi & Jasimuddin, 2016). This paper explains the meaning of KM, OL capability and TM practice variables to show how they can be applied and measured within the entity. The measures are useful for a clear understanding of application and practice of an OKS. In addition, they will help in building a strategic plan based on the measurements of the system elements.

The researcher selected the research methodology that enabled a balanced research framework. SPSS software was used to collect and analyse qualitative data'. This paper used hypotheses that assume that an OKS increases performance, surveys of employees from different federal government entities to evaluate their OKS. However, the research paper has used primary data. The primary data resources are from them. As often emphasized, (Peersman 2014) and (Nicholas, et al. 2011) have pressed on the issue of good data analysis as foremost criteria for good research. An astute interpretation of the acquired data shall help to concretize the research hypothesis and help in giving the paper a comprehensible shape.

The most important component of data integrity is the accurate and appropriate analysis of research findings and statistical analyses. The current study utilizes data from a questionnaire survey performed that focuses on OKS in the UAE government entities. The data will be collected from the sample: employees and managers in UAE federal entities.

## II. DEVELOPING OKS MODEL

The main elements (KM, OL, TM and OP) are helped to reach to best link between them. However, author uses the crossed links between all elements to build framework by using the theoretical back ground.



OKS is continuing processes by managing organization knowledge and processing OL in a systemic way within an organization which is activated by employee's .The heart of OKS is KM. It plays an important role in improving an organization's outcomes. OL and TM combine with KM to form an OKS model (Alshehhi & Jasimuddin, 2016).

The OKS framework examines the relation between KM and OP variables. However, there is a relationship between KM and OP. When TM is aligned with an organization's strategy, KM effects OP, which allows the organization to respond to develop the entity. KM affects the direction relation between OL capability variables and the OP variables, which creates an interaction between them. The KM variables influence the strength of the relationship between OL and OP variables. When OL is aligned with an organization's strategy, OL has a great effect on OP (Alshehhi & Jasimuddin, 2016).

### **III. ORGANIZATIONAL KNOWLEDGE SYSTEMS MECHANISMS**

The researcher used items that were found by other researchers to have influence on the OKS mechanisms. These items were modified and selected carefully to help measure the OKS model.

OKS is a technique focusing on managing knowledge and processing the learning. However, TM practices affect the correlation between KM and OP. OKSs provide processes and procedures to encourage employees to participate and develop skills that lead to improved performance and efficiency in the entity. The mechanisms happen by applying KM, TM and OL, which helps participants and entities to achieve strong finances, efficiency and innovation.

#### **A. KNOWLEDGE MANAGEMENT**

KM is an organizational knowledge that feeds the learning process within organization to increase the performance of human beings. However, the following explains in more details the variables of KM:

##### **1. KNOWLEDGE CREATION**

Knowledge creation includes problem-solving and continuous improvement of knowledge and new skills within organizations. Problem-solving brings employees together to look at every possible solution.

Knowledge creation is defined as a dynamic process including collecting data and transforming data into information that becomes knowledge at different learning levels. It is also defined in academic studies as error correction and error detection (Mariano 2015).

Knowledge creation is intended to create value via problem-solving and incessant improvement (Massingham 2014). Problem-solving involves a group of people working together to analyse a situation, determine the real problem, look at every possible solution, evaluate each of the solutions and choose the best one for their purposes. The real success in problem-solving arises from how it is done. If procedures are not followed correctly, the entire method will fail. There are seven steps for problem-solving: 1) establish goals, 2) identify the problems, 3) identify the constraints, 4) identify alternatives, 5) evaluate alternatives, 6) select the best solution, and 7) implement the solution (Jay and Thad 1997).

Using continuous improvement tools in manufacturing at the same time makes them most effective. These tools and concepts come alive when daily activities and simple teachings are coupled, and they can result in significant improvements. However, tools presented in the continuous improvement model are interdependent. They offer the potential to serve as a foundation for individuals to become better skilled at lifelong learning and systems thinking (Emiliani 1998).

##### **2. KNOWLEDGE RETENTION**

Knowledge retention involves building organizational memory by structuring retained documentation, and through the extent of knowledge being documented, it measures the effectiveness of storage of documented knowledge. In addition, retaining knowledge that exists in the minds of people, by exchanging information and discussing learning materials with others, maintains organizational memory.

Knowledge retention has been defined by Ellen and Hester (2012) as maintaining knowledge that exists in the minds of people. In fact, in order to retain critical and highly specialized knowledge, organizations need to concentrate on developing a formal retention strategy (Juliano 2004).

Knowledge retention can be achieved in organizations through the following: Exit interviews: these are usually used to ask employees who plan to leave the organization to explain why, but they rarely

capture knowledge, mind maps to bring up tacit knowledge by getting employees who are leaving to explain their intuition and judgment by giving them mental models requiring them to apply their tacit knowledge to new problems and mentoring: guiding people (mentees) to collection of experience, allowing the mentor to monitor the degree to which the knowledge is being understood (Massingham 2014).

Special care must be devoted to several processes: retaining best practices and unexpected situations; structuring the process of knowledge retention; and structuring retained documentation (Moria 2011). There are four levels of maturity of knowledge retention processes in the knowledge retention model and their indicators have been documented. The first level shows knowledge sharing levels in the organization. The second level measures the extent to which shared knowledge is documented. The third level measures effectiveness of storage of documented knowledge, and the fourth level measures simplicity of knowledge accessibility and retrieval (Mohammed, et al. 2009).

### **3. KNOWLEDGE SHARING**

Knowledge sharing within entities happens through congruence, received task interdependence and participative decision-making.

Transferring knowledge between individuals, groups, departments and organizations is called knowledge sharing. It allows organizations to develop and benefit from knowledge-based resources when they have been shared between employees and within and across teams (Xiao and Jane 2015). Moreover, knowledge sharing is neither prescribed nor required in advance of undertaking a job. Chieh (2007) has hypothesized that four factors congruence, organizational commitment, received task interdependence and participative decision-making – have an effect on knowledge sharing (Chieh 2007).

#### **B. ORGANIZATIONAL LEARNING**

OL is continuous process of learning through organizations in order to build learning organizations. However, the following explains in more details the variables of OL:

##### **1. PERSONAL MASTERY**

Personal mastery contains learning in order to keep a personal idea and a clear picture of existing truth. Nevertheless, when people practice it, it is about conversation between them. Giasemi (2004) has defined personal mastery as a “personal vision and values, strong sense of reality, understanding the value of competency and ability to move from competence to capability” (Giasemi 2004).

Personal mastery is “a set of specific principles and a practice that enables a person to learn, create a personal vision, and view the world objectively” (Peter 2003-2016). It is also directed by principles such as purpose, vision, belief, commitment and knowing oneself (B. Baker 2016).

In making the inextricable link between individual learning and OL, people with high levels of personal mastery continually increase their capability to create the results in life they truly seek. From their quest for continual learning comes the spirit of the LO (Rosemary 1996).

##### **2. SYSTEM THINKING**

System thinking involves ensuring that an organization has connectivity, dissipation and emergence. In addition, system thinking supports the view of organizations. Management considers the different needs and abilities of employees during lesson plan development. However, if knowledge practices have changed, management will consider the impact on their results. In dealing with an employee discipline problem, management will consider the impact on other faculties.

“System thinking is the recognition of where and when actions and changes in structures can evoke lasting improvements” (Montuori 2000): OL is an important example of actions based of systems thinking. Indeed, when change happens in a feedback response, it means that learning is happening (Montuori 2000).

Chaordic Systems Thinking (CST) explicitly supports the view of organizations, which consider the observer and the observed as indivisible parts of the same reality (Frans and Goran 2004). Five core properties characterize CST: 1. Consciousness: the vital driving force of an enterprise. 2. Connectivity: CST identifies all or part of an enterprise at the same time. 3. Indeterminacy: CST indicates that every event is cause and effect together in the dynamical complexity of an enterprise and this complexity makes the future mainly unknowable. 4. Dissipation: enterprises may be dissipative systems engaging in destruction and creation cycles. 5. Emergence: enterprises are supposed to struggle for ascending levels of coherence and complexity, made possible by capacities for self-organization, self-reference and self-transcendence.

### **3. TEAM LEARNING**

As an internal stimulus for emergent learning behavior, team learning happens through employees’ network participation, as they spending time building trust and asking for other views, as well as using team activities in faculty professional development activities.

Learning teams are an important part of an LO: “Team learning is expressed through interaction processes between team members, during which they organize and integrate interdependent acts or input through cognitive, verbal and behavioral activities to organize team work effectively and create valuable team output” (Elisabeth , et al. 2015).

Individual learning eventually transfers through group processes into institutionalized organizational knowledge: “The new interpreted knowledge is integrated into the groups’ and organizations’ existing knowledge and becomes institutionalized” (Fisser and Browaeys 2010). Generally, network participation is a good internal incentive for emergent learning behavior. The group’s members can offer fascinating input when the new team recreates (Fisser and Browaeys 2010).

#### **A. TALENT MANAGEMENT PRACTICES**

TM practices are an implementation of systems and actions focusing on career planning, attraction and appraisal, to improve the knowledge within the organization. However, the following explains in more details the variables of TM practices:

##### **1. CAREER PLANNING**

Organizational plans and employee career paths are the two factors in career planning that require special effort from both the organization and the individual to develop the skills and capabilities for moving along a career path. Each employee’s career plan needs to target development plan.

Career planning and TM are strategic plans that give first priority within entities to seeking potential employees with desirable qualities. Entities should consider two factors when putting together their career plan: the business plan and employee career paths.

Career planning is done by employees to develop the skills and capabilities needed to move them along a career path (Deloitte Development LLC 2016). Developing a career path happens by looking at employees’ jobs within their organization (Susan 2016).

##### **2. ATTRACTION**

Attracting employees is simply a case of offering prospective workers the best deal in terms of salary and other financial benefits. Different factors will always mean different things to different people.

Whereas some will be attracted by the firm's location, others might place greater emphasis on flexible working patterns; also, some talents are attracted by job security.

Many organizations find that providing a productive, flexible and dynamic work environment can be a critical asset for attracting and keeping valuable employees (Earle 2003). The entity can attract talent by salary, compensation, e-recruiting and visits to career fairs.

### **3. APPRAISAL**

Appraisal is the process that is used by managers to check and evaluate work by employees, comparing it with preset standards and comparison results documents. The results are used to give employees feedback and indicate their improvement areas, with explanations (WebFinance Inc, Performance Appraisal 2016). Performance appraisal is a performance evaluation system to enable employees to know their abilities in order to develop them (MSG 2016).

The performance appraisal process requires managers to recall performance history of employees anywhere from three months to a year ago. Also, it typically needs to be supported by peer review input, self-appraisals and supported documents such as job descriptions and work objectives (Samarakone 2010): "Appraisal is measurement by people, assessment development, compilation of succession lists, job rotation, and 360° feedback/performance" (Denise and Stefan 2016).

### **IV. ORGANIZATIONAL PERFORMANCE**

The author has viewed measuring performance of the entity through three main areas which the author believes that these areas are the important elements to find out the way direction of the entity performance. The three performance areas are described as below:

#### **A. FINANCIAL PERFORMANCE:**

Financial performance can be measured using value added per employee, cost per business and turnover (Ajay 2015). Performance measurement systems are considered as an information source of financial outcomes and the internal operations exposed in the financial statements. Performance categories are 1) financial, 2) customer, 3) operational, 4) innovation, 5) employee, 6) supplier, and 7) quality, which measure the performance diversity (Majdy, Rafat and Salah 2011).

#### **B. INNOVATION:**

*Innovation means having new ideas within entity by team working, creative operating methods and encouraging creativity. In addition, entity frames accredited innovations (Hsiu-Fen 2007). However, KM techniques have an indirect positive effect on financial performance through increased innovation performance. Consequently, OL will improve innovation in organizations (Argyris and Schon 1996).*

#### **C. EFFICIENCY:**

Employees' ability is to provide to others knowledge that the entity considers valuable, and relies on the expertise required to provide valuable knowledge for the entity and provide more valuable knowledge than before (Hsiu-Fen 2007). It measures the outcome's relationship to input and is considered an internal performance standard (Zhiang and Kathleen 2003).

### **V. TESTING OKS MODEL**

OKS model has tested through structural equation modeling by using Ordinary Least Square Regression and Mediator and Moderator Regression. The results have established the model with

statistical significance at 5% probability and less level. For the convenience variables in a particular cluster which are combined into a single variable by summing and dividing the score by number of variables. In other words, the recoded variable is the mean. The researcher used the items that resulted from other researchers in terms of their influence on the OKS mode

1. These items have been modified and carefully selected to help measure the OKS model.

#### **A. ASSESSING SURVEY RESPONSE ADEQUACY**

The questionnaires were sent to 500 respondents out of 348 respondents which have sent the filled up the questionnaire. Giving the difference in on-paper and online surveys, it is seen that the paper survey are received far more responses. However, it was found that 5 respondents answered the question related to age 25 years old and under when their answer to the question about their education was Doctoral degree. Thus, they were deleted and the figure came to 343, thus bringing down the percentage of returned survey at 68.6%. This is still good.

#### **B. RESPONDENT CHARACTERISTICS**

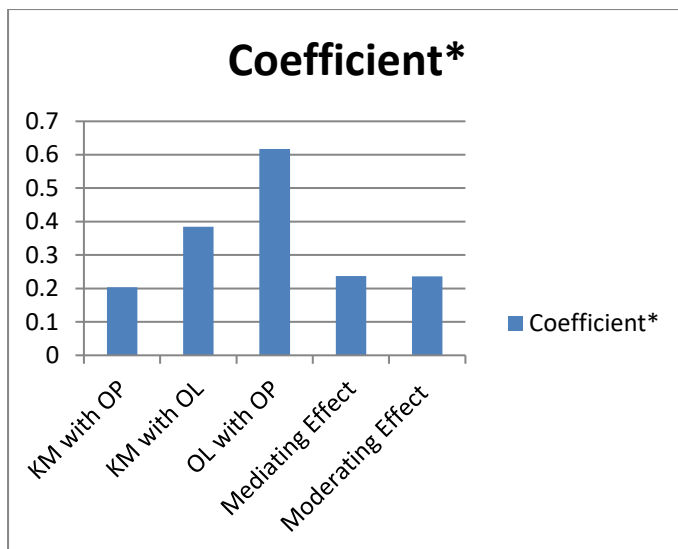
Respondents are the employees of the United Arab Emirates federal entities and managers' of these entities. The characteristics of the respondents are calculated in four domains: age, gender, education, and employment status.

The age data is uniformly distributed among the four classes. It is a matter of satisfaction that all the age groups are uniformly represented in the sample. 8.2% of the respondents are 25 or below. 60.3% are between 26 to 40 years, 30.9% are between 42 and 55 years of age and a bit less than 0.6% are 56 or above. The gender distribution is also somewhat balanced between both the sexes. Against 51.6% of the male respondents, there are 48.4% of the female respondents.

The education status of the respondents is normal distributed. However, the number of the lowest numbers of respondent 9.0% is having doctor degree which normal for this education level. Followed by high school or equivalent is 20.4%. The master and bachelors are almost having the same percent 21.9% and 23.6%. Finally the highest number is 25.1% for Diploma or equivalent. Out of the total respondents, 46.9% of them are at the managerial position and remaining 53.1% are employed in the non-managerial position.

#### **C. TESTING OF THE HYPOTHESES**

The coefficient figure below shows the relationships between the OKS model elements. However, we can see OL has coefficient value which means it has strongest positive significant relationship with OP on OKS model.



**Hypothesis 1: Organizational learning capability has a significant positive association with organizational performance.**

Fiol and Lyles (1985) have convincingly put that organizational performance affects the organization's ability to learn and to adapt to a changing environment. (Baker and Sinkula 1999) have said that 'a firm's learning orientation is likely to indirectly affect organizational performance by improving the quality of its market-oriented behaviors and directly influence organizational performance by facilitating the type of generative learning that leads to innovations in products, procedures, and systems'. García Morales and Jiménez Barrionuevo (2012) have also proved through their study of Spanish firms that 'organizational learning influences organizational performance positively, both directly and indirectly through organizational innovation'.

The mean value of Organizational learning is correlated with the mean value of Organizational Performance and the test statistic was signified at p value less than or equal to 0.05. There is significant and positive correlation for organizational performance and organizational learning. But the correlation is more intense for managerial positions than the non-managerial positions. However, the relationship between the OL practices and OP is strongly positive and significant.

**Hypothesis 2: Talent management practices moderate the relationship between knowledge management and organizational performance such that when talent management practices are high the relationship will be positive.**

Moderator variables are those variables that moderate a relationship. In this case, Talent management is a moderating variable in the relationship between knowledge management and organizational performance. A different set of the dialog is needed in smart PLS environment for conducting the moderate relationship. The test shows that there is a moderating effect of TM on a relationship of KM with OP.

With the moderating variable as talent management and hypothesis is tested for positive relationship between knowledge management and organizational performance. The relationship provided to be positive with the variable and significant as the p-values less than 0.05.



**Hypothesis 3: Knowledge management has a significant positive association with organizational performance.**

Zack, McKeen and Singh (2009) have said that ‘KM practices were found to be directly related to organizational performance which, in turn, was directly related to financial performance. Choi et al. (2008) through their study of 131 Korean firms have found a ‘synergistic effects of knowledge management strategies on organizational performance. Similarly, study by (García Morales and Jiménez Barrionuevo 2012) hints towards a positive relationship between KM and OP.

Mean value of Knowledge management is correlated with the mean value of organizational performance and the test statistic was signified at p value less than or equal to 0.05. There is a significantly positive association for the correlation of KM and OP. But the correlation is more intense for non-managerial positions than the managerial positions. Moreover, the relationship between the KM and OP is positive and significant.

**Hypothesis 4: Organizational learning capability effectiveness mediates the relationship between knowledge management and organizational performance.**

Mediator variables are those variables that mediate a relationship. In this case, Organizational learning is a mediating variable in the relationship between knowledge management and organizational performance. A different set of the dialog is needed in Smart PLS environment for conducting the mediating relationship. In study of (Liao and Wub 2010) found that organizational learning is the mediating variable between knowledge management and organizational innovation. And, with knowledge management as an important input, the organizational learning is a key process, and organizational innovation is a critical output. (Noruzy, et al. 2012) in this study of manufacturing firms have found that OL can have a mediating role along with KM in amplifying OP.

In this case as per (Hayes 2013) the researcher has used the 4th model and the effect is seen through a numerical value. The test shows that there is a mediating effect of OL on a relationship of KM with OP. It is observed that there is a significant positive relationship between knowledge management and organizational performance but the relationship got more intense with the mediation of Organizational learning. The relationship between KM with OP and mediates with OL variable. The relationship is found to be significant as the p-values are less than 0.05. Hence the association between variables proved to be significant.

**Hypothesis 5: KM has a significant positive association with OL capability.**

According to (Firestone and McElroy 2004) ‘KM needs OL and its expanding body of good research work. OL needs the practitioner base of KM and its abiding interest in problems and practice’. Organizational learning and knowledge management act as complementary to each other. Theriou and Chatzoglou (2008) have also indicated towards the complementary role of organizational learning and knowledge management in helping the Human Resource Managers.

The mean value of KM is correlated with the mean value of organizational learning and the test statistic was signified at p value less than or equal to 0.05. There is a significantly positive correlation for knowledge management and organizational learning. But the correlation is more intense for non-managerial positions than the managerial positions. Moreover, there relationship is positive and significant.

**D. TESTING THE MEAN DIFFERENCES IN RESPONDENT GROUPS**

For comparing the means based on respondent groups the researcher has utilized ANOVA as a tool. If the mean comparison is insignificant, it means there is no difference among the groups. ANOVA test proved in the mean comparison is insignificant that means there is no difference among the groups as the p-values are greater than 0.05. Hence, through ANOVA there is no difference between the mean value of knowledge management, organizational learning, talent management and organizational performance except the mean comparison among the respondent employment status.

Mean comparison/ characteristics	KM	TM	OP	OL
Mean comparison among the respondent age groups	insignificant	Insignificant	insignificant	insignificant
Mean comparison among the respondent gender	insignificant	insignificant	insignificant	insignificant
Mean comparison among the respondent education	insignificant	insignificant	insignificant	insignificant
Mean comparison among the respondent employment status	Significant	Significant	Significant	Significant

**E. MULTILAYER TEST**

The researcher has designed part of the research questionnaire to test the hypotheses directly and the OKS model in general by compared the results of these questions with the results of SEM as multilayer test of the OKS model. This comparison made results more realistic and documented as logical in order to ensure validity of the OKS model and hypotheses results.

The below table shows the results of five OKS questions and the results of the hypotheses are in the same direction.

Hypotheses Results	OKS Questions Results
There is a significant and positive relationship between OP and OL.	The results showed that 79.88% of participants agreed that the OL of an organization contributes to increasing their learning and ultimately helps them to achieve OP

There is a significant positive relationship between KM and OP but the relationship get more intense with the moderation of TM.	The results showed that 77.10% of participants agreed on the effect of organizations' TM practices in strengthening the relation of KM and OP
There is significant and positive relationship between OP and KM.	The results showed that 82.24% of the participants agreed with the statement that "OL capability accounts for the relationship between KM and OP.
There is a significant positive relationship between KM and OP but the relationship get more intense with the mediation of OL.	The results showed that 81.36% of the respondents agreed with the statement "KM predicts that, as organizations increase their OL, the probability of achieving high OP increases significantly
There is a significant and positive relationship between OL and KM.	The results showed that 79.58% of respondents agreed with the statement "KM predicts that, as organizations increase their OL, the probability of successfully launching OL capability increases significantly.

OP has a positive relationship with KM, OL and TM also the OKS question confirmed that there is positive relationship between OKS (which contains KM, TM, and OL as one system) with OP.

Test OKS Model	OKS Question
OP has a positive relationship with the variables. Thus, OP is influenced by KM, OL and TM.	The result of the study showed 80.47% participants agreed with the research based on the OKS model generally.

## VI. RESULTS

In the present paper, the researcher approached OKS as system contents KM, OL and TM which can increase OP. However, the researcher has examined direct relationships between KM with OP, OL with OP and KM with OL in terms of survey from a study of 343 employees of UAE Federal entities.

It was empirically reiterated that OKS has a bearing on KM, TM, OL, and OP. OKS model has tested through structural equation modeling by using Ordinary Least Square Regression and Mediator and

Moderator Regression. Also tested by multilayer test which is compared the results of some created questions linked to researcher hypotheses and OKS model with the results of SEM.

In the OKS model, there was one dependent variable, which is OP, while an OKS has three independent variables, which are KM, OL capability and TM practices. The findings showed OL capability has a significant positive association with OP, TM practices moderate the relationship between KM and OP such that when TM practices are high the relationship will be positive, KM has a significant positive association with OP, OL capability effectiveness mediates the relationship between KM, OP and KM has a significant positive association with OL capability. Moreover, the multilayer test gave extra confirmation for all of the previous results. Finally the results have support the acceptance of the OKS model validity either by SEM test or by multilayer test that organization shall improve their performance by applying OKS.

Furthermore, a very remarkable deduction can be made that there are no mean differences in responses among different age groups, gender, and educational level. There is a significant mean difference among the managerial and non-managerial employees.

## **VII. CONCLUSION**

The researcher explained the meaning of KM, OL capability and TM practice variables to show how they can be applied and measured within the entity. The measures are useful in gaining a clear understanding of application and practice of an OKS.

OKS must take into organizational infrastructure, the organizational culture and employees, the knowledge that is to be processed by OKS. With an emphasis on KM, TM, OL, and OKS would definitely enrich itself in a disciplined setting. It was significantly proved that OL capability has a significant positive association with OP. Besides, with a significant positive association between KM and OP, TM practices a positive mediating role.

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