

# **The Impact of Knowledge Management Stages on Organizational**

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## **Performance Applied to Public Sector Companies for**

## **Pharmaceutical Industries in Egypt**

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### **Abstract**

This study aims to explore The Impact of Knowledge Management Stages on Organizational Performance in Public Sector Companies for Pharmaceutical Industries in Egypt. This study adopted - to achieve this objective - a set of hypotheses that were statistically tested, where findings revealed there is a significant intangible effect of all Knowledge Management stages dimensions on the Organizational performance in the in Public Sector Companies for Pharmaceutical Industries in Egypt.

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تأثير مراحل ادارة المعرفة على الاداء التنظيمى بالتطبيق على شركات القطاع العام  
للصناعات الدوائية بجمهورية مصر العربية

### ملخص الدراسة

استهدفت الدراسة استكشاف تأثير مراحل ادارة المعرفة (خلق المعرفة، تخزين المعرفة، مشاركة المعرفة، تطبيق المعرفة ) على الاداء التنظيمى لشركات القطاع العام للصناعات الدوائية بجمهورية مصر العربية ، ولاختبار درجة تأثير مراحل ادارة المعرفة على الاداء التنظيمى، فقد استخدم الباحث اسلوب تحليل الارتباط، وتحليل الانحدار المتعدد وتوصلت الدراسة الى وجود تأثير معنوى لابعاد مراحل ادارة المعرفة على الاداء التنظيمى (البعد المالى، بعد العملاء، بعد العمليات الداخلية ، بعد التعلم) فى شركات القطاع العام للصناعات الدوائية فى ج.م. ع مما يدعم التوصية بضرورة العناية والاهتمام بمراحل ادارة المعرفة لتفعيل الاداء التنظيمى للشركات

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### **1. Introduction**

Knowledge management has been to great interest to many of Researches, whereas there are many of research on the knowledge management along with its relationship to many functional and organizational variables as the above mentioned Research found a lot of advantages to the management of Knowledge. (Suppiah and M., 2011;Zacket al., 2009;Kongpichayanond, 2009).

Some of the above mentioned Research has addressed the Relationship between Knowledge management and KM Processes or performance in an act of Isolation, while others focus on the relationship between KM and the performance of Organizations; therefore The researcher considers that; the integrated Perspective for the KM is missing as the role of KM in activation to Organizational Performance is unclear. (Tubigiet al. 2013;Ahmedet al., 2015).

In fact; KM can be considered as a Strategy helps Organizations to use Knowledge to gain a distinct advantage over its competitors but most of Studies regarded to KM considers the organizational learning on of the most important assets to gain an competitive advantage contributing to the success of the organization in a competitive business environment. (Mills and T, 2011).

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Current study is based on an attempt to capture the stages of KM on organizational Management, based upon stages of KM that following to Knowledge Creation, Knowledge Storage, Knowledge Sharing, Knowledge Application and Balanced Scorecard to measure the organizational Performance.

### **2. Literature Review**

Basu,2014defines knowledge management to include several areas such as education and sharing of practices as well as employee training and development and communication media (Basu,2014).Bloodgoodet al., sees there is two categories of knowledge differ in that tacit knowledge is personal and difficult to capture while explicit knowledge is easier to capture and manage. Knowledge management opportunities are capture of tacit knowledge for use by an organizational practice(Obeidat et al., 2015). It is important to account for the differences in managing tacit and explicit knowledge since these types of knowledge capture, creation, transferal, and sharing occur via different methods (Bloodgoodet al., 2012).

Knowledge creation is concerned with the development of new organisational knowledge in the firm, including improved use or new application of existing knowledge, while Knowledge acquisition represents a flow of knowledge from external stocks of knowledge into the firm (Paarup,2006).

If Knowledge is Value and can be managed as an asset; leaders must reconsider their perspective when they set goals to their Companies (Grant, 1996).

Companies are different and own different knowledge about their competitors as different knowledge bases and Capabilities associated with KM positively and Difference Performance of the Company (West and T., 2009).

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(Sankowska,2013) undertook a study to deal with the Knowledge Transfer, Knowledge Creation, Organizational Confidence and ability of innovation to determine that the Knowledge Creation is a mediator between Confidence and Innovation.

(Landrogez and J.,2014) supports a study indicates that the use of Knowledge; is mean that the retention of Knowledge Creation to integrate it in the stages of Transformation and Storage is necessary.

(Mahr and Lievens,2012) tests Knowledge Creation that regarded to Innovation in Virtual Communities as they found that the Knowledge Creation is differ in different Virtual Communities according to individual focus areas; knowledge that is created requires transforming it to others to be effective for the organization.

Lin, 2012 defines Knowledge Storage as a process of determination, evaluation and knowledge of relevant Knowledge and Value as well as preservation in repository of Knowledge Network, it involves with three tasks: first; Knowledge acquisition from different Sources, then dissemination to Knowledge to be available for organization participants Members and lastly; coordination and preservation to Knowledge as certainly; Stored Knowledge become a valuable asset; particular when access to Knowledge and easily retrieval (Lin et al.,2012).

Wang and Wang,2012 believes knowledge sharing takes place when employees are ready to share explicit and implicit knowledge that increases the competitive advantage of the organization (Wang and Wang, 2012).

Hau, Kim et al.,2013 sees that explicit knowledge seems cheaper and easier to transfer than implicit knowledge which is higher in value because of its complexity (Hau et al.,2013).

Jain and A., 2015 considers that the accumulation of knowledge occurs when it is shared within the organization, which is important to take in account when creating knowledge to support the improve the performance of the organization (Jain and A., 2015).

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Wang and Wang, 2012 believes that the sharing of implicit knowledge has had negative correlations with the financial performance of the organization, in addition to a positive correlation between Implicit Knowledge and the operational performance of the organization (Wang and Wang, 2012).

Knowledge Transferring from one project to another can improve the performance and capabilities of organization (Landaeta, 2008), but knowledge can be affected during transferring, leading to impairment (GeraghtyandK., 2005).

The study of Al Maani, 2009 tried to determine the trends of directors in Jordan Ministries to apply the concept of knowledge management and its impact on there performance (knowledge creation, knowledge application, knowledge sharing and knowledge storage) on the performance of directors where it explains These dimensions 49% of directors performance. (Tubigi et al., 2013).

Zawawiet al., 2011, conducted a study on operational knowledge management in Arabian Airlines industry in Kingdom of Saudi Arabia; Meanwhile, The study concluded that the field of knowledge is much less understood in the companies under studyas Knowledge management is highly dependent on Information Technology solutions; as a result, it is less applicable to low-level Information Technological companies (Zawawi et al., 2011).

Tanriverdi, 2005 concluded that; there is implicit relationship between financial performance of the company and its capability on Knowledge Creation, Sharing, Integration and Use(Zawawi et al., 2011).

Many Researchers have tried to evaluate the knowledge management contribution and have found that the knowledge management leads to a new techniques to develop the products and a new agenda. However, the knowledge base of each company is founded as the fundamental factor for performance levels (Lai and Lee, 2007).

It is notable that there are a big gap in knowledge management ways which has reached to the absence of significant difference in

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organizational performance of Organization (Zacket al., 2009) which has led to a lot of troubles for Practitioners, for example, a survey on 431 American and Europe Organization which found that the biggest obstacle facing the implementing of knowledge management practices are the measure of value of knowledge asset and its impacts (Ruggles,1998). (Palacios and F.,2006) have implemented a field study on 222 Spain Company relating to manufacturing of biotechnology and communication to stop the relationship between the practices of knowledge management and organizational performance and founded that those Organizations which adopted the knowledge management means achieving a best results of its competitors. Furthermore, Zack, et al., 2009 did a study of the knowledge management impact on the performance through identifying 12 practices of the knowledge management and to explore it throughout it impacts on the organizational performance of North America and Australia Companies and have found that these practices of the knowledge management directly relating to the financial performance, while there is no impact on operational performance (Zack et al., 2009).

Lee and B., 2003 has seen that while there is no impact on the knowledge management on improving some parties of Companies, that means the Financial Performance will be improved. He also found that there is a positive direct relationship between the knowledge management dimensions and strategy performance of Company which is represented in the operation's quality, Customer Relationships (CRM) and financial performance. The knowledge has become now an significant and quick measure for the future organizational performance (Lee and B.,2003).

Chen and S., 2008 have concentrated on giving experimental evidence between the knowledge management activity and organizational works performance with the use of balanced scorecard. The study has found that the knowledge management has its direct, indirect impact on the performance indicators in the balanced scorecard. There is also an indirect significant impact on the financial performance while there is a

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direct impact, whether on the internal operations, education and growth (Chen and S., 2008).

While the Jayasingamet al., 2013 study aimed at interpreting the relationship between the knowledge mangment practices and the organizational performance. While the knowledge management has three fundamental dimensions (The acquisition of knowledge, Spread of knowledge and the use of knowledge). The study has found also that the acquisition of knowledge has a positive impact on the strategy and operational improving, while the study has found that the acquisition of knowledge wasn't have its significant impact on the performance measuring. The study has gotten also that the spread of knowledge only affected on the strategy improving. The study has reached also that there are a positive impact of using the knowledge on the strategy and operational performance of the organization (Jayasingamet al., 2013).

While the Boumarafi and N. 2008 study has searched the relationship between the knowledge management and the organizational performance and has founded that there is a statistically relevant relationship between the knowledge mangment dimensions, whether on the organizational culture, consumer satisfaction and decision-making. The study has recommended the importance of the clear vision of the knowledge management so as to improve the performance on the future. Since knowledge is rapidly becoming a very important measure of the organizational future performance (Boumarafi and N., 2008).

From the above discussion, this study investigates the following hypotheses:

- H1: There is no statistically significant effect of knowledge management stages on Organizational performance using Financial Perspective of the Balanced Scorecard perspectives.
- H2: There is no statistically significant effect of knowledge management stages on Organizational performance using Customer Perspective of the Balanced Scorecard perspectives.



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H3: There is no statistically significant effect of knowledge management stages on Organizational performance using Internal Process Perspective of the Balanced Scorecard perspectives.

H4: There is no statistically significant effect of knowledge management stages on Organizational performance using Learning Perspective of the Balanced Scorecard perspectives.

### **3. Methodology**

This section discusses the study sample, its specifications and the measures of knowledge management and organizational performance. Cronbach's alpha are used to test the validity and reliability of instruments. Finally, descriptive and analysis method are discussed.

#### *3.1 The sample*

The study was conducted at 11 affiliated with the Public sector companies for pharmaceutical industries in Egypt. These companies were Chemical Industries Development Co. (SID), Nile Pharmaceuticals and Chemical Industries, Memphis Pharmaceuticals and Chemical Industries, Cairo Pharmaceutical & Chemical Industries Co., Arab Pharmaceutical & Chemical Industries Company, Alexandria Company for Pharmaceutical and Chemical Industries, El Nasr Co. For Pharmaceutical Chemicals, Al Gomhoria Company for Pharmaceuticals, Egyptian Pharmaceutical Trading Company, Medical Packaging & Supplies Company, Misr Medical Products Company, During the months of December and January 2017, 400 pairs of the questionnaires were distributed to employees. employees' questionnaire included questions about gender, educational level, and tenure. It also included a question to assess to what extent they Knowledge Management Stages in Organizational performance. Only 326 employees questionnaires were returned by response rate 81.5%. Due to incomplete data, 27 questionnaires were excluded and so the final

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response rate was 74.75%. The employees' sample was classified according to the respondent's gender into 76.70% male and 23.30% female; according to respondent's level of education into 29.8% less than college degree, 57.7% college degree, and 12.5% more than college degree; and according to respondent's tenure into 22.1% less than or equal 5 years, 30.7% more than 5 years and less than or equal 10 years, and 47.2% more than 10 years' experience.

### 3.2 Measures

The questionnaire of this study is consists of two instruments Knowledge management stages and organizational performance instrument. Survey design and test the credibility and reliability of the study instruments are discussed as follows:

Table 1. Factor loading and alpha coefficient of knowledge management stages instrument

| Knowledge Management Stages Instrument   | Factor Loading<br>(Alpha Coefficient) |
|--|---------------------------------------|
| <b><i>Knowledge Management</i></b>       |                                       |
| Knowledge creation                       | 0.169***                              |
| Knowledge storage                        | 0.142***                              |
| Knowledge sharing                        | 0.219***                              |
| Knowledge application                    | 0.098***                              |
| <b><i>Organizational performance</i></b> |                                       |
| Financial Perspective                    | 0.086***                              |
| Customer Perspective                     | 0.069***                              |
| Internal Process Perspective             | -0.034***                             |
| Learning Perspective                     | -0.517***                             |

### 3.3 Statistical Tests

Table 2 presents the means, standard deviations and correlations among the study variables. The study also depends on hierarchical multiple regression analysis to test the direct effects of knowledge

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management stages on the dimensions of organizational performance. The demographic variables which included gender, educational level and tenure are inserted in regression models as control variables. Therefore, Regression model used to test the hypotheses of the study was designed as shown in equation(1).

$$OP = \beta_0 + \beta_1 GEN_i + \beta_2 EDU_i + \beta_3 TEN_i + \beta_4 KAC_i + \beta_5 KCO_i + \beta_6 KAP_i + \beta_7 KPR_i + u_{i(1)}$$

Where:

i points to each dimension of knowledge management stages;

GEN points to gender;

EDU points to the educational level;

TEN points to tenure;

KAC points to the Knowledge creation;

KCO points to the Knowledge storage;

KAP points to the Knowledge sharing;

KPR points to the Knowledge application;

### 4. Analysis

The means, standard deviations and correlation coefficients among study variables are presented in Table 2. The knowledge management stages have a significant positive correlation with all dimensions of organizational performance. Moreover, control variables such as gender, the educational level and tenure have not a significant correlation with all dimensions of Knowledge management stages and organizational performance.

The regression model is conducted four times according to each dimension of organizational performance, which are illustrated in table 3. The first regression model determines the influence of each dimension of Knowledge management stages on 8. Financial Perspective. The fitted model was significant according to the value of F test (F=96.262,  $\rho < 0.001$ ) and the interpreted power of the model was 47.4% as represented by R<sup>2</sup>. The results of this model indicate that relational

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Knowledge creation, Knowledge storage and Knowledge application have a significantly positive effect on Financial Perspective. The second regression model, which tests the impact of Knowledge management stages dimensions on Customer Perspective is also significant ( $F=122.39$ ,  $\rho<0.001$ ). It shows that Knowledge creation, Knowledge storage and Knowledge application are the significant factors affecting Customer Perspective. Moreover, the F value of the third model indicates that the model is significant ( $F=190.580$ ,  $\rho<0.001$ ). In this case, Knowledge creation, and Knowledge application are the main significant determinants of Internal Process Perspective. Add to that, the results of the fourth model show that tenure, Knowledge creation and Knowledge application are the main significant factors explaining the variations of Learning Perspective.

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Table 2. Descriptive statistics: means, standard deviations, and correlation matrix of study variables

| Variables                        | M    | SD    | 1      | 2       | 3      | 4       | 5       | 6       | 7       | 8       | 9       | 10      |
|----------------------------------|------|-------|--------|---------|--------|---------|---------|---------|---------|---------|---------|---------|
| 1. Gender                        | 1.23 | 0.423 |        |         |        |         |         |         |         |         |         |         |
| 2. Educational Level             | 1.83 | 0.629 | 0.024  |         |        |         |         |         |         |         |         |         |
| 3. tenure                        | 2.25 | 0.795 | 0.001  | 0.327** |        |         |         |         |         |         |         |         |
| 4. Knowledge creation            | 2.67 | 1.33  | -0.056 | -0.066  | 0.044  |         |         |         |         |         |         |         |
| 5. Knowledge storage             | 2.64 | 1.43  | -0.084 | -0.036  | 0.006  | 0.769** |         |         |         |         |         |         |
| 6. Knowledge sharing             | 2.88 | 1.37  | -0.079 | -0.015  | 0.080  | 0.773** | 0.735** |         |         |         |         |         |
| 7. Knowledge application         | 2.71 | 1.28  | -0.089 | -0.083  | -0.014 | 0.739** | 0.661** | 0.795** |         |         |         |         |
| 8. Financial Perspective         | 2.30 | 1.20  | -0.026 | -0.046  | -0.033 | 0.623** | 0.580** | 0.565** | 0.645** |         |         |         |
| 9. Customer Perspective          | 2.28 | 1.22  | -0.23  | -0.029  | -0.006 | 0.674** | 0.608** | 0.609** | 0.680** | 0.857** |         |         |
| 10. Internal Process Perspective | 2.47 | 1.31  | -0.013 | -0.068  | 0.027  | 0.673** | 0.555** | 0.603** | 0.698** | 0.767** | 0.808** |         |
| 11. Learning Perspective         | 2.52 | 1.31  | -0.015 | 0.003   | 0.092  | 0.754** | 0.601** | 0.666** | 0.723** | 0.774** | 0.814** | 0.859** |

Note. \*p< 0.05 ; \*\*p<0.01.

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Table 3. The test of the effects of Knowledge Management Stages on Dimensions of Organizational Performance

| Variables             | Financial Perspective | Customer Perspective | Internal Process Perspective | Learning Perspective |
|-----------------------|-----------------------|----------------------|------------------------------|----------------------|
|                       | $\beta^{(sig.)}$      | $\beta^{(sig.)}$     | $\beta^{(sig.)}$             | $\beta^{(sig.)}$     |
| Gender                | 0.034                 | 0.038                | 0.045                        | 0.044                |
| Educational level     | 0.006                 | 0.027                | -0.008                       | 0.046                |
| tenure                | -0.038                | -0.015               | 0.019                        | 0.127*               |
| Knowledge creation    | 0.199**               | 0.268**              | 0.335**                      | 0.464**              |
| Knowledge storage     | 0.136*                | 0.115*               | -0.011                       | -0.031               |
| Knowledge sharing     | -0.085                | 0.051                | -0.050                       | -0.009               |
| Knowledge application | 0.349**               | 0.356**              | 0.456**                      | 0.387**              |
| R <sup>2</sup>        | 0.474                 | 0.534                | 0.542                        | 0.636                |
| F <sup>(sig.)</sup>   | 96.262**              | 122.390**            | 190.580**                    | 186.679**            |

Note. \* p<0.05 ; \*\* p<0.01.

### 5. Discussion

The study has proposed that the applying of the knowledge management stages on the organization working on the effectiveness of the organizational performance, whereas the results is complying with these hypotheses. The stages of knowledge management has its own positive impact on the organizational performance and the results shows that the knowledge management has its impacts on the organizational performance with the use of financial perspective which representing the most effective dimensions on Knowledge Creation, knowledge storage and knowledge application. This result means that if the organization has

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high standards on the knowledge management, it proposed that it will reflect on the financial performance of the organization.

This result is complying with the study of (Wang and Wang , 2012, Hau Kim et al., 2013). The results of the study has founded that the distance of the participation of knowledge will not effect on the organizational performance from the financial performance perspective. This result is also complying with the study of (Jayasingamet al., 2013).

Furthermore, the result has shown there is a positive impact on the knowledge management on the organizational performance with the use of customer perspective. The results ensures the knowledge management dimensions representing in the knowledge Creation and knowledge storage. Knowledge application is the fundamental clear variables on the perspective of the consumer and these variables interprets around 53.4% of changes on the consumer's perspective.

This result agreed with the study of (Wang and Wang, 2012, BoumarafiN,2008). The result of the study has shown that the distance of the participation of knowledge will not effect on the organizational performance with the perspective of consumers.

Conclusions emphasized that; there is a positive impact to KM on organizational Performance, using learning perspective to balanced scorecard, whereas the results showed that the most important variables of KM affect learning perspective; represented in Tenure and Knowledge Creation and application as this variables explain approximately 63.6% of change in organizational performance from Learning perspective.

This conclusion is consistent with the study of each of (Chen and S., 2008).

Study Conclusion showed that; the two dimensions of this study of storing and sharing Knowledge did not affect organizational performance

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from Learning perspective and this conclusion is consistent with the study of (Jayasingamet al., 2013).

The study sample was selected from 11 companies; they affiliated to one Sector “Public sector companies for pharmaceutical industries in Egypt”. Therefore, additional research should be conducted to test to what extent the study results can be generalized. Moreover, the study variables were measured at the certain point of time, thus the nature of this study is a cross-section. Despite these limitations, the major strength of this paper is that it uses an innovative stages knowledge management scale which concentrated on the theoretical concept itself and included cognitive dimension which is a changed process in Organizational Performance. Furthermore, this study is one of the first empirical studies in knowledge literature. In the future, I recommend researchers to study the mediating role of knowledge management and the Organizational Performance.

### **7. Conclusion**

There has been a growing recognition of the role that Knowledge management stages in Organizational performance. Therefore, this study aims to investigate the impact of knowledge management stages on organizational performance. The study applied the multiple regression analysis on data collected from 326 employees in Public sector companies for pharmaceutical industries in Egypt. The results have shown that Knowledge management stages are effect on Organizational performance. Therefore, Knowledge management stages are predictive variables of Organizational performance. In light of these results, I recommend Providing the appropriate environment for knowledge management that is characterized by trust, mutual respect, ethical



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behaviour and effective interactive relations between different administrative levels. Analyzing the cognitive environment by identifying knowledge gaps between the administrative levels of the organization or between new and old employees.Or between FAO's knowledge and its external environment. By assessing available knowledge and determining what to know, how and why.

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