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## REVIEW OF KEY PERFORMANCE INDICATORS TO EVALUATE THE TACIT KNOWLEDGE PERFORMANCE OF THE ACADEMICIANS

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### Abstract:

The tacit knowledge represents the knowledge and skills that stored in the employees' minds in order to perform their working tasks. The performance of the organizations services are depending on the level of tacit knowledge of the employees. The organizations should evaluate the tacit knowledge resources to sustain the competitive advantages over other organizations in same industry. The evaluation of tacit knowledge is not simple due to intangible nature of this type of knowledge. Hence, the key performance indicator (KPI) approach is important to evaluate the tacit knowledge of the employees based on applicable indicators. This study focuses on evaluate the performance (quality and quantity) of the tacit knowledge level of the academicians in the universities. The main aim of this paper is to investigate the key performance indicators that could be applied to evaluate the tacit knowledge level of the academicians. The literature is reviewed in order to determine the most effective performance indicators that were applied to evaluate the level of tacit knowledge. The review of literature proposes 11 performance indicators that are experience year, qualification level, achievements, innovated idea, publishing quantity, publishing quality, number of attended training, assessment by supervisor, and assessment using tests, number of supervised students, and number of students that the academic staff is teaches. This study provides many effective indicators that can be adopted to construct KPI model in order to evaluate the tacit knowledge level of the academicians in the universities. In the future, further indicators could be explored to enrich the evaluation performance of tacit knowledge level.

**Keywords:** KPI; Academicians; University, Tacit knowledge, performance evaluation.

### 1. Introduction

[1] Defined the knowledge as the skills and experiences that are assess as implacable insights in the working environment. Usually, the working experts are the main sources of the knowledge. According to [2], there are two kinds of the knowledge; (i) the explicit knowledge the documented in forms such as books, articles, and database, and (2) tacit knowledge that stored in the employees

minds and reflected as working skills. The explicit knowledge can be converted to tacit knowledge and vice versa [3].

The tacit knowledge of the employees plays important role in produce the working performance such as products/services quality and productivity [2], [4], and [5]. The tacit knowledge of the academicians in the

universities is one of the main sources that used to develop the students' skills and experience in the various fields. In this context, the universities should assure the performance of the academicians' tacit knowledge in order to produce effective human resources for the marketplace [5], [6]. Due to the importance of academicians' tacit knowledge, the universities should evaluate the performance level of the tacit knowledge of the academic staff in order to update and develop the knowledge performance based on the strategies and objectives of the universities.

The evaluation of the tacit knowledge in the university is an issue due to intangibility nature of this kind of knowledge [4], [7]. Hence, the universities face challenge in evaluate of the performance level of the academicians' tacit knowledge. To address the issue of tacit knowledge evaluation, the Key Performance Indicator (KPI) system would be adopted [8], [9]. The KPI can be applied to measure the tacit knowledge performance of the individuals [7]. In the universities, KPI can be applied to evaluate the performance level of the academicians' tacit knowledge based on effective indicators that indicates the quality and/or quantity of the academicians' knowledge [4].

This study aims to review the performance indicators that could be applied effectively as a KPI to evaluate the quality and quality level of the tacit knowledge of the academicians in the universities. The next section presents the related works in the domain of this study. Section 3 discusses the reviewed performance indicators that can be applied to evaluate the tacit knowledge level of the academicians in the university. Lastly, section 4 presents the conclusion and the future works.

## **2. Related Works**

The evaluation of knowledge resources is considered as a success factor of knowledge management implications. Knowledge evaluation allows the organizations to

understand the performance level of knowledge capital in the working environment. Thus, the knowledge resources could be developed and updated based on the contexts of working strategies and objectives [5]. Many works mentioned the importance of KPI to evaluate the performance level of employees' tacit knowledge [10], [11], [12].

[13] Argued that the KPI system is necessary for the knowledge growth in the organization through continual evaluation of the knowledge performance level of the employees. The KPI indicators need to reflect the knowledge development of the employees based on the required skills in the working environment. One of the main important KPI indicators is evaluate the learning activities of the employees through test their skills depend on specific forms i.e. test the employees' skills theoretically and practically. Similar argumentation of [13] was presented by [14] with the focusing on the number of attended training courses as important indicator to evaluate the tacit knowledge level of the employees. Furthermore, [15] explained that the number of attended training courses (i.e. in education or industrial domains) is useful indicator to reflect the enhancement on the knowledge performance level of the employees.

[16], [17] mentioned that the KPI would be applied to evaluate the academicians' tacit knowledge based on two directions; the indicators of knowledge performance and the indicators of knowledge profits. The knowledge performance indicators reflect the quality and quantity of the tacit knowledge. On the other hand, the profit indicators reflect the financial profits that gained from the knowledge implications in the working environment. The researchers mentioned several indicators to evaluate the performance level of the tacit knowledge such as the experience years, qualification level, assess the knowledge level by working supervisors, assess the knowledge level using tests, the number of workshops that attended by the employee, number innovated ideas in the working environment, number of

publishing, and quality of publishing. In the same context of KPI system, [18] suggest the innovation in the working environment as important indicator of knowledge performance level. The employees who able to present innovated behaviors in the working environ could have performer knowledge level than other employees.

The publishing quality and quantity is considered as important indicator of the performance level of tacit knowledge [19], [20]. The researchers mentioned that, the employees who have good knowledge level are able to publish a number of qualified knowledge as articles, papers, or books. Thus, the publishing number and quality would reflect the performance level of the tacit knowledge of the employees in any organization. The same indicator is suggested by [4], [5] in addition to other such as the experience of years (the working for long periods leads employees to develop their knowledge based on the daily working activities). On the other hand, the qualification level is another important performance indicator. The academicians could develop their knowledge continually to upgrade their qualifications level i.e. upgrade from master to PhD or upgrade from assistant professor to associate professor. Moreover, the assessment by working supervisor would indicate the quality level of the tacit knowledge. Lastly, the quality of tacit knowledge can be evaluated through assessment tests.

[4] Proposed another important indicator which is the quality of teaching services. The quality of the academicians teaching based on their teaching activities can be evaluated using many criteria such as the given feedback from the students. On other hand, the knowledge based on supervision activities could be measured through the number of postgraduate students that supervised by the academician due to the required knowledge to perform the supervision activities. Furthermore, the number of the students that the academicians teach could important indicator to measure the quantity

performance of the tacit knowledge level. The larger number of the students in the classroom required larger effort of knowledge to perform the teaching activities. [20] Argued that the quality of teaching services is important indicator to evaluate the quality of academicians' tacit knowledge.

[21] Mentioned that the assessment by working supervisor and the assessment using tests are important indicators that would be applied to evaluate the performance quality of tacit knowledge level. In the same context, the assessments using tests was suggested by [22]. [23] Explained the importance of the performance indicators to evaluate the tacit knowledge level of the academicians. The evaluation of the knowledge is important for the processes of knowledge growth in the organizations. The researchers suggested two performance evaluation indicators; the experiences of years and the qualification level.

[24] Clarified the important of the performance indicators based on the gaining knowledge through many activities. For example, the number of training courses is a quantitative indicator that could reflect the performance level of the academicians' tacit knowledge. Another activity is the number of attended conferences or workshops. Another important indicator is the innovation and achievements on the working environment. The employees who able to innovates new ideas could have high quality level of tacit knowledge.

[25] Mentioned that the experience years is one of the main indicators that can be adopted to evaluate the performance level of the tacit knowledge. Also, the number of the publishing as well as the publishing quality is effective indicators to evaluate the academicians' level of tacit knowledge.

[26] Explained that the assessment by working supervisor is effective indicator to evaluate the quality level of the tacit knowledge. The working supervisors provide their assessment based on the working

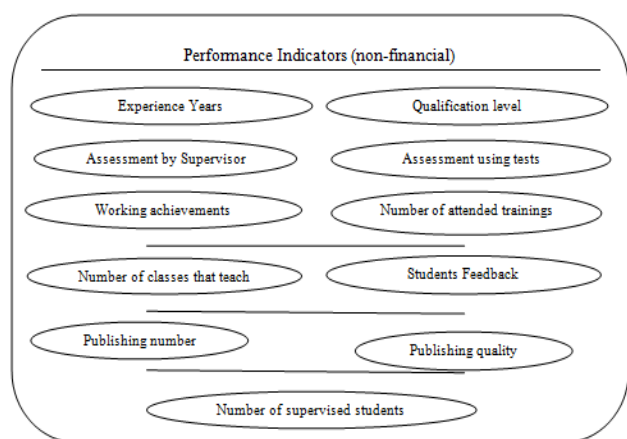
performance of the employees, which reflect the employees' level of knowledge. Also, [27] argued that the quality of knowledge level can be evaluated through tests assessment that designed carefully by the organization depend on the activities in the working environment.

In conclusion, the academicians' knowledge level could be evaluated using 11 indicators which are: (1) The number of knowledge gaining activities that accomplished such as number of attended workshops and training courses; (2) qualification level; (3) number of published research; (4) quality of published research; (5) years of experiences; (6) assessment by working supervisors; (7) assessment using tests, (8) innovated ideas in the working environment, (9) working achievements, (10) number of student that teach, and (11) number of students that supervised. Table 1 summarizes the performance indicators that would be applied to evaluate the level of academicians' tacit knowledge.

Table 1: Knowledge Performance Indicators

<b>Indicator</b>	<b>Evaluation purpose</b>	<b>Description</b>	<b>Source</b>
Experience Years	Quantity of knowledge performance	Longer working time could increase the tacit knowledge level	[4],[5],[16],[17],[28]
Number of Attended training course	Quantity of knowledge performance	The larger number of attended training courses could improve the knowledge performance level.	[13],[14],[15]
Qualification Level	Quality of knowledge performance	Higher qualification required enhancement in knowledge level	[4],[5],[16],[17],[28]
Number Of Publishing	Quantity of knowledge performance	More publishing reflect higher knowledge level	[4],[5],[16],[17],[28]
Quality Of Publishing	Quality of knowledge performance	The quality of the publishing judge the performance level of the tacit knowledge	[4],[16],[17],[19],[20],[28]
Gaining Knowledge Based on supervision Activities	Quality of knowledge performance	More involvement in monitor the student's research could increase the knowledge performance.	[16],[17],[20]
Quality Of Teaching Services	Quality of knowledge performance	The quality of teaching need to enhance the tacit knowledge level	[4],[5],[23],[24],[25]
Number of Innovation and achievements	Quality and Quantity	More innovation ideas and achievements in the working environment required high knowledge level.	[16],[17],[18],[24]
Number of students that teach and supervised	Quantity of knowledge performance	The larger number of communications and discussion with the students could increase the knowledge performance level.	[16],[17],[28]
Assessment By Supervisor	Quality of knowledge performance	The working supervisors can evaluate the performance level of the employees' knowledge based on the accomplishments of the tasks.	[4],[5],[16],[17],[21],[26],[28]
Tests Assessments	Quality of knowledge performance	The practical and theoretical tests would indicate the knowledge performance level of the employees.	[4],[5],[16],[17],[22],[27],[28]

Based on the above related works, the performance level evaluation of academicians' tacit knowledge would be conducted based on the non-financial indicators (quantity and quality). The performance level of academicians' tacit knowledge can be evaluated based on 11 non-financial indicators; 6 basic indicators (experience years, qualification level, assessment by working supervisor, assessment using test, Working achievements such as innovated idea, and Number of attended training courses or conferences), two specific indicators based on teaching activities (number of class that teach, and students feedback based on teaching performance), 2 specific indicators based on researching activities (publishing number, and publishing quality), 1 specific indicator based on supervision activities (number of postgraduate students under their supervision). Figure 1 shows the proposed indicator of KPI model to evaluate the performance levels of academicians' tacit knowledge.



**Figure 1:** Proposed Performance Indicators

Based on the above Figure 1, the attributes of the basic evaluation indicators were indentified through the review of literature. There are six non-financial indicators can be used to evaluate the performance level of the academicians' tacit knowledge; (A) experience years, (B) qualification level, (C) assessment by working supervisors, (D) assessment using tests, (E) working achievements such as innovated ideas, and (F) number of attended training courses or conferences. Each indicator need to assign with relative evaluation scales and points. For examples: the academician that qualified as PhD

will get 100/100 as evaluation points; The academician that has 2-4 experience years will get 40/100 as evaluation points; The academician will get 70/100 evaluation points if the working supervisor assessment for this academician is in the scale of 5-7; The academician that own gold achievement based on innovated idea will get 100/100 as evaluation points; academician that attend 0-2 training courses or conferences will get 20/100 as evaluation points.

Depend on [4] evaluation formula, the performance level of academician tacit knowledge based on the basic six indicators can be computed as the:

$$TKPL = \sum_A^F \text{indicators points} * \text{coefficient importance, where the TKPL is the tacit knowledge performance level.}$$

On the other hand, there are two non-financial indicators can be used to evaluate the performance level of the academicians' tacit knowledge specifically based on the teaching activities; (G) Number of classes that teach, and (H) the students' feedback based on the teaching performance. For example, the academician will get 100/100 evaluation points when he/she teach classes in total credit more than 10 hours and more than 100 students are register in these classes. The gauge of the G scales is based on the standard of number of allowed students in the traditional classes (20-30 students).

In the context of indicator H, the students feedback is usually collected based on five likert scales (strongly agree- strongly disagree). Thus, the academician that collect feedback of strongly agree will get 100/100 evaluation points. On the other hand, the academician that collect feedback of strongly disagree will get 10/10 evaluation points. Hence, the total indicators that would involve the performance evaluation can be computed based on the following formula:

$$TKPL = \sum_A^H \text{indicators points} * \text{coefficient importance, where the TKPL is the tacit knowledge performance level.}$$



Moreover, there are two non-financial indicators (publishing quantity and publishing quality) can be used to evaluate the performance level of the academicians' tacit knowledge specifically based on the researching activities. However, it is better to combine these two indicators as one indicator; (I) publishing number and quality. For example, the academician will get 60/100 evaluation points when he/she publish more than 10 papers in Scopus impact factor. While, the academician will get 100/100 evaluation points when he/she publish more than 5 papers in ISI impact factor. The gauge of the (I) scales is based on the standard Impact factor of the publishing. Hence, the total indicators that would involve the performance evaluation can be computed based on the following formula:

$$TKPL = \sum_A^F \text{indicators points} * \text{coefficient importance} + (I \text{ points} * \text{coefficient importance of I}), \text{ where the TKPL is the tacit knowledge performance level.}$$

Furthermore, there is one evaluation indicator can be applied based on the specific activities of academicians supervision; (J) number of postgraduate students under their supervision. For example, the academician will get 70/100 evaluation points when he/she supervised 3-5 PhD or Master Students. Therefore, the total indicators that would involve the performance evaluation based on the supervision activities can be computed based on the following formula:

$$TKPL = \sum_A^F \text{indicators points} * \text{coefficient importance} + (J \text{ points} * \text{coefficient importance of J}), \text{ where the TKPL is the tacit knowledge performance level.}$$

According to the above discussion, the basic indicators of the performance levels are mandatory to involve the of academicians tacit knowledge. Many evaluation scenarios could be conducted to assess the performance and value

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level of tacit knowledge based on the certain indicators. For example, the evaluation based on researching activities of the academician can be conducted based on the performance evaluation (  $\sum_A^H \text{indicators points} * \text{coefficient importance}$  ). To evaluate the overall performance level of the academicians' tacit knowledge based on the teaching, researching, and supervision activities, the following formula can be conducted:

$$TKPL = \sum_A^J \text{indicators points} * \text{coefficient importance}$$

#### 3. Conclusion and Future Works

This study focuses on evaluate the performance level of academicians tacit knowledge in Iraqi universities. The review of literature is conducted to identify the performance indicators that could be applied to evaluate the tacit knowledge level of the academicians in the universities. The review of literature identified 11 non financial indicators to evaluate the tacit knowledge level based on various academic activities such as researching, teaching, and supervision. These indicators are (1) The number of knowledge gaining activities that accomplished such as number of attended workshops and training courses; (2) qualification level; (3) number of published research; (4) quality of published research; (5) years of experiences; (6) assessment by working supervisors; (7) assessment using tests, (8) innovated ideas in the working environment, (9) working achievements, (10) number of student that teach, and (11) number of students that supervised. The discussion of the related work clarifies the processes that can be conducted to evaluate the tacit knowledge performances based on the indentified indicators.. In the future further indicators would be analyzed to improve the effectiveness of evaluate the performance of tacit knowledge level based on KPI implications.

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## مراجعة مؤشرات الأداء الرئيسية لتقييم أداء المعرفة الضمنية للأكاديميين

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### الخلاصة

تمثل المعرفة الضمنية المعرفة والمهارات التي يتم تخزينها في عقول الموظفين من أجل أداء مهام العمل الخاصة بهم. يعتمد أداء خدمات المؤسسات على مستوى المعرفة الضمنية للموظفين. يجب على المنظمات تقييم موارد المعرفة الضمنية للحفاظ على المزايا التنافسية على المنظمات الأخرى في نفس الصناعة. تقييم المعرفة الضمنية ليس بسيطاً بسبب الطبيعة غير الملموسة لهذا النوع من المعرفة. وبالتالي ، فإن طريقة مؤشر الأداء الرئيسي (KPI) مهم لتقييم المعرفة الضمنية للموظفين على أساس المؤشرات المعمول بها. تركز هذه الدراسة على تقييم أداء (جودة وكمية) مستوى المعرفة الضمنية للأكاديميين في الجامعات. الهدف الرئيسي من هذا البحث هو استكشاف مؤشرات الأداء الرئيسية التي يمكن تطبيقها لتقييم مستوى المعرفة الضمنية للأكاديميين. تتم مراجعة الاعمال السابقة من أجل تحديد مؤشرات الأداء الأكثر فعالية التي تم تطبيقها لتقييم مستوى المعرفة الضمنية. تقترح مراجعة الاعمال السابقة 11 مؤشراً للأداء هي: سنة الخبرة ، ومستوى التأهيل ، والإنجازات ، والفكرة المبتكرة ، وكمية النشر ، وجودة النشر ، وعدد دورات التدريب الذي حضره الأكاديمي، والتقييم من قبل المشرف ، والتقييم باستخدام الاختبارات ، وعدد الطلاب الخاضعين لإشراف الأكاديمي ، وعدد الطلاب الذين درسوا من قبل الأكاديمي. توفر هذه الدراسة العديد من المؤشرات الفعالة التي يمكن اعتمادها لبناء نموذج KPI من أجل تقييم مستوى المعرفة الضمنية للأكاديميين في الجامعات. في المستقبل ، يمكن استكشاف المزيد من المؤشرات لإثراء أداء التقييم لمستوى المعرفة الضمنية.

**الكلمات المفتاحية:** KPI، الأكاديميون ، الجامعة ، المعرفة الضمنية ، تقييم الأداء.