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ROLE OF KNOWLEDGE MANAGEMENT TOWARDS IMPROVING ORGANIZATIONAL PRODUCTIVITY AND EFFICIENCY – CASE STUDY OF SAUDI ELECTRICITY COMPANY

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Abstract

Nowadays, knowledge is one of the most important and valuable resources of an organization and therefore is considered part of its intellectual capital. Knowledge Management (KM) focuses on capturing, organizing and sharing available knowledge, wherever and whenever it is needed. KM can have a significant impact on the way people are performing the different processes and as consequence it will impact the overall organization performance. The present study attempts to analyze the impact of Knowledge Management (KM) on organizational productivity and performance in the Saudi Electricity Company. A descriptive research design was adopted wherein the research attempts to identify the impact of KM dimensions such as Knowledge Acquisition, Knowledge Dissemination and Responsiveness to Knowledge on organizational productivity and efficiency. An overall analysis of the results revealed that there is a positive and vital influence of KM methods on increasing effectiveness and efficiency of Saudi Electricity Company by improving the ways of managing and disseminating knowledge.

Keywords: Knowledge Management, Knowledge Acquisition, Knowledge Dissemination, Responsiveness to Knowledge, Organizational Efficiency, Organizational Productivity

1. Introduction

Today, knowledge management (KM) has become one of the major tools of an organization to position itself in a competitive, highly competitive and rapidly transforming market (Cepeda-Carrion *et al.* 2017). KM is defined as the process of acquiring knowledge and expertise, sharing and applying this knowledge within the organization. This will have the effect of motivating innovation, creating value for the customer and will thus result in performance at work (Omotayo, 2015). In addition, KM creates a favorable environment for competent people to share their knowledge and expertise which can lead to the creation of new knowledge. Knowledge generation

relies primarily on human capital, namely: experience, skills and motivation. This human capital is used for the benefit of the organization. The tacit nature of the knowledge possessed by the employees of an organization makes it difficult to capture and therefore use this knowledge for the benefit of that organization (Soliman and Vanharanta, 2020). The main objective of the knowledge-based organization is to collect, process and disseminate information and knowledge to many stakeholders (Wu and Hu, 2018). Studies have shown that KM approaches and processes affect job satisfaction, which results in increased job performance (Al-Abdullat and Dababneh, 2018).

It is widely described that job satisfaction will increase overall job performance and organizational commitment (Bakotić, 2016). The job satisfaction's background has been investigated broadly and some of the vital factors have been recognized like role ambiguity, job design and skill variety. But the problems in KM have not been covered within the perceived affecting factors. Even though, the satisfaction of the job is the subject that is highly researched in the organizational behavior area (Ali *et al.* 2014). It has not been often approached from the view that is based on knowledge. To fill this literature gap, the present paper investigates how the approaches and process of KM work to affect every employee's satisfaction in their job.

KM is comparatively new and its methodologies for execution are even now under progress in together with the experience development (Omotayo, 2015). Therefore, little research has been there on the effective execution and progress, or those system's possible advantages (Alosaimi, 2016), and no enough research was done on' Critical Success Factors (CSF) of KM (Samad *et al.* 2014) (Margilaj and Bello, 2015). It has been claimed that the KM projects' execution remains an obstacle for majority organizations (Bakotić, 2016). The main challenge that organization undergoes is strategic knowledge management by the processes trying to coerce, convince, and lead the people in the organization to communicate the knowledge (Amir and Parvar, 2014). Knowledge's integrated and complicated nature caused high rate of failure in the execution of KM (Abubakar *et al.* 2019) and most of the projects gets failed because of the inadequate knowledge of KM execution (Rhem, 2016). Further bad execution and intending of KM has cause poor knowledge of the organization. As a result, this has caused poor policies, decisions and strategies of the management (Stephenson, 2012).

Researchers like Gunasekera and Chong (Gunasekera and Chong, 2018); Kasemsap (Kasemsap, 2018) have examined the critical success factors that influences the execution of KM, but very few research has been performed on the incorporated approach for the execution of KM (Okfalisa *et al.* 2009). Thus, insufficient empirical studies are there indicating how KM makes variations to operational performance and several articles and studies which analyze and examine the association among KM and other aspects and also among operational performance and KM (Aboelmaged, 2014) (Heisig *et al.* 2016). Further, till now, there is no enough research that determined the advantages of encouraging the workers to share and involve knowledge within the organization.

The approaches and process of KM on work performance and job satisfaction has been deliberated hardly in literatures. Although, the present study is distinct and significant for some reasons, initially, the impact of KM from two perceptions is examined, i.e. its approaches and operations, since there is a gap in analyzing the impact of the given two disciplines in the performance and job satisfaction measurement in the Saudi Arabian Electrical Company. On the other hand, the present study is said to be as a contribution since it highlights approaches as well as processes of KM in Saudi Electricity Company (SEC).

Considering the importance given by the organization towards managing its knowledge assets, the present study attempted to analyze the impact of KM on organizational productivity and performance in the Saudi Electricity Company where knowledge management is comparatively new and its methodologies for execution are even now under progress in together with the experience development. Therefore, little research has been there on the effective execution and progress, or those system's possible advantages, and no enough research was done on critical success factors (CSF) of KM. It has been claimed that the KM projects' execution remains to an obstacle for majority of the organization like Saudi Electricity Company. The main challenge that organization undergoes is strategic knowledge management by the processes trying to coerce, convince, and lead the people in the organization to communicate the knowledge.

Knowledge's integrated and complicated nature caused high rate of failure in the execution of KM and most of the projects gets failed because of the inadequate knowledge of KM execution. Further bad execution of KM has caused poor knowledge of the organization. As a result, this has caused poor policies, decisions and strategies of the management.

The main aim of this research is to show the impact of KM (knowledge acquisition, Knowledge dissemination and responsiveness to knowledge) on enhancing the productivity of the Saudi Electricity Company. To obtain this, the following objectives are derived: (1) to examine the role and impact of KM practices on improving the productivity and efficiency of Saudi Electricity Company, (2) to find out the factors that enable the KM practices in Saudi Electricity Company, and (3) to show the relationship between KM practices and organizational productivity and efficiency.

2. Literature review

There are lot of researchers in earlier have focused their research on examining the role and importance of KM on increasing efficiency and productivity of the organization in general perspective.

KM has a major part in every organization which helps the organization to efficiently manage the changes, paving the way for innovation and growth and raising their productivity. Some of the scientific studies have mentioned the relativeness of using initiatives of knowledge management for enhancing the organizations and projects that do projects. By effective application of KM, the effectiveness of the organization can be enhanced as well as can attain competitive benefit. KM supports in the process of decision making in order to benefit the firm. It causes greater effectiveness on forging in work, subsequently through remarkable good performance, good quality decision and improving the abilities of new employees. At present, KM turned into globally and locally important issue in most of the organization because of the developed economic competition. It is seen in the present study that KM can collaborate and coordinate to enhance the performance of the organization through applying, sharing, and retaining knowledge. The presence of KM approaches and KM processes in the work setting is positively associated with satisfaction in the job. Subsequently, the present study represents the KM's distinct benefit for the organization and supports the knowledge ecosystem. Thus, the approaches and processes of KM are considered as a novel practice of the organization to increase the work performance of the employees.

KM plays a vital part in enhancing profitability by supporting to make decision on what type of innovation is to be used and also exploring the effect of innovation in product development. In this aspect, numerous studies evidenced the relation of KM importance and enhancing productivity of organization. For example, Zaied *et al.* (2012) consider that every component of knowledge management abilities has positive association with every performance measure; it implies that a good association is present among the relationship among the organizational performance and knowledge management abilities. Byukusenge and Munene (2017) stated that the innovation completely arbitrates the association among the Small and Medium Scale Enterprises (SMEs) business performance and knowledge management through offering proof from progressing country. The outcomes can assist the SMEs business owners to make use of the innovation as a canal for the KM to increase the performance of the business. Antunes and Pinheiro (2019) show the association among the innovation, knowledge management and organizational learning.

Some studies explore the role of KM on enhancing productivity of organization through exploring employees' role. For example, Alsereihy *et al.* (2012) seeks the answer for the question how the solution of KM is executed within KSA companies while yet attaining the rules that government declared. The major objective is to show that the main organization which efficiently uses KM accomplishes good performance in the perception of: turnaround time, productivity and entire effectiveness of the organization. Study shows that communication, rules, regulations and routines are enablers of knowledge sharing in the organizations. However, language and technology (sub-factors of culture) as collaborative tools are proven to be problematic; consequently, creating hindrances to knowledge sharing. It has been concluded that powerful the

culture of the organization is, the high influential it is towards the KM execution and the more workers will transfer and share relative knowledge. If the culture is weaker, then the influence towards the efficiency of the execution is less. The findings represent that the culture of the organization strongly influences the system of business and success by sharing of knowledge.

Depending upon the findings of the present study, it is claimed that it is essential to affect knowledge sharing and organizational culture for accomplishing the results of the business system (like individual and organizational influence). Furthermore, the knowledge needs to be accessible for every stakeholder engaged in the current utilization of the business system.
Technology is the major aspect of the KM within the organization. Correct training is every essential in order to make sure that all can access, use and share it easily the present technology. The study of identifies organizational, individual, task characteristics, and technological factors as main enabling factors that promote knowledge sharing in the workplace.

The conceptual framework proposed in this paper is based on the availability of the dimensions defined by and the relationship between the dimensions of KM on organizational efficiency and productivity as per previous literature studies. The KM dimensions that have been adapted as independent variables are Knowledge Acquisition, Knowledge Dissemination and Responsiveness to Knowledge. The dependent variables considered for this paper is Organizational Productivity and Efficiency. The research framework proposed for this study is shown in Figure 1.

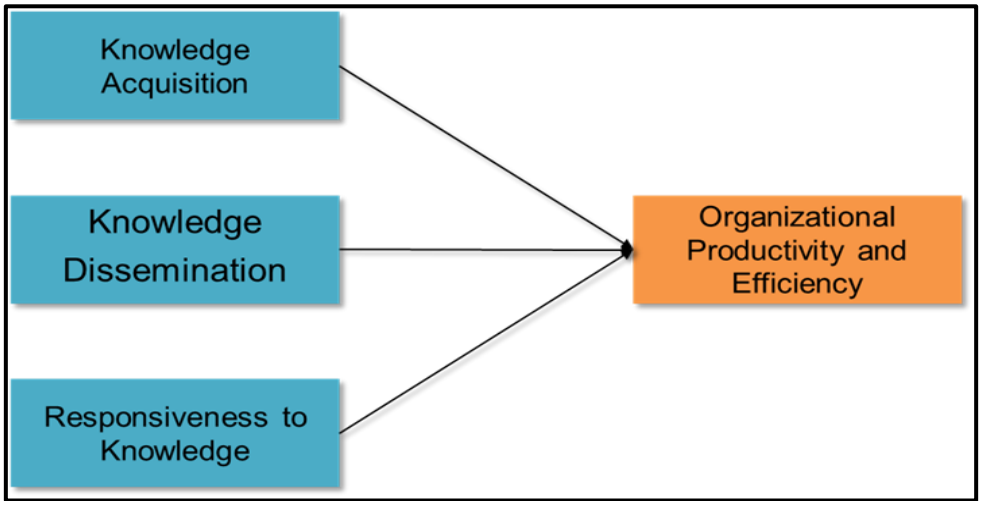

Figure 1. Research framework

Based on the research framework and literature studies, the following hypotheses are framed.

H1: Knowledge Acquisition shows a relationship on enhancing Organizational Productivity and Efficiency.

H2: Knowledge Dissemination shows a relationship on enhancing Organizational Productivity and Efficiency.

H3: There is a relationship between Responsiveness to Knowledge on enhancing Organizational Productivity and Efficiency.

3. Methodology

For the present study, a descriptive research design was adopted wherein an attempt to identify the association between variables is considered. The sample considered is composed of Saudi Electricity Company employees wherein the participants are selected across different departments from the company. The total population at Saudi Electricity Company is estimated to 5000 employees in the western region. The company holds monopoly in terms of distribution, transmission and generation of electric power in Saudi Arabia.

The company has almost 50 branches in various cities in the Western region of Saudi Arabia which includes the cities of Jeddah, Makkah, Madinah, Rabigh, Taif, Yanbu, Tabuk etc. Participants in this study where employees working in various sectors, departments and facilities in western region of SEC. Stratified simple random sampling was used to select the participants. First the different strata were selected randomly to form the list of different departments. Then participants in every stratum were selected randomly from a list of employees related to that department. This sampling method guarantees a good representation of departments and employees. A questionnaire-based data collection instrument was used to collect data from the participants and the sample size of the study was 494 employees. The collected data was analyzed using the Statistical Package for Social Sciences (SPSS) software. Data analysis techniques such as frequency analysis, correlation analysis, and regression analysis are performed to analyze the relationship and association between the considered variables.

4. Research results

A total of 494 participants were considered for this research. Frequency analysis was performed on the demographic characteristics of the participants, such as age, education, marital status, and experience. Most participants belong to the age group of 31-36 years (48%). A majority of participants are married (78.5%) and are undergraduates (67.8%). Most participants have 5-10 years of experience working at Saudi Electricity Company (47%). The data associated with all the aforementioned demographic characteristics are listed in Table 1.

4.1. Frequency statistics

Table 1. Statistics on age, marital status, educational qualification, and experience

Age		
Age Categories	**Frequency**	**Percent**
25-30 years	121	24.5
31-36 years	237	48.0
37-42 years	101	20.4
More than 42 years	35	7.1
Total	494	100.0
Marital Status		
Marital Status Categories	**Frequency**	**Percent**
Married	388	78.5
Unmarried	106	21.5
Total	494	100.0
Educational Qualification		
Educational Qua. Categories	**Frequency**	**Percent**
Undergraduate	335	67.8
Masters	120	24.3
Others	39	7.9
Total	494	100.0
Experience		
Experience Categories	**Frequency**	**Percent**
Below 1 year	45	9.1
1-5 years	115	23.3
5 -10 years	232	47.0
10-15 years	102	20.6
Total	494	100.0

Opinions were acquired from participants regarding KM, in particular, adoption of KM practices, contribution of KM, and benefits of KM to the company. A majority of participants revealed that SEC can ‘create and refine knowledge’ followed by ‘capture knowledge’ and ‘disseminate and store knowledge’. A majority of 50.4% stated that KM contributes to ‘increasing

organizational profit and performance'. In addition, a majority of the participants revealed that KM is effective in increasing production (65%) (Table 2).

4.2. Adoption, contribution, and benefits of KM to SEC

Opinions regarding the use of knowledge management in SEC are highlighted in Table 2. Among 494 respondents, 59.3% of them could create and refine knowledge, while 21.5% of the participants could capture knowledge, and finally 13.6% of the respondents were capable to disseminate and store knowledge. The lowest number of people opted for the others category. Table 3 shows that all the participants agreed to the adoption of KM by SEC.

Table 2. Adoption, contribution, and benefits of KM to SEC

Opinion regarding knowledge management		
Categories	**Frequency**	**Percent**
Capture knowledge	106	21.5
Create and refine knowledge	293	59.3
Disseminate and store knowledge	67	13.6
Others	28	5.7
Total	494	100.0

Table 3. Adoption of knowledge management

Adoption of Knowledge Management	Frequency	Percent
Yes	494	100.0

Table 4 underlines the knowledge management contribution to the company. Responses show that KM will enhance employees' knowledge, and will increase organizational profit and performance. 50.4% of the respondents replied that KM will increase organizational profit and performance, while 21.7% of the participants have proven that the company pays particular attention to the employees to improve their knowledge. The remaining 27.9% of respondents formulated various other reasons for the contribution of knowledge management to the performance of the company.

Table 4. Knowledge management contribution to organization

Knowledge management contribution to the organization	Frequency	Percent
Enhance the employee knowledge	107	21.7
Increase organizational profit and performance	249	50.4
Others	138	27.9
Total	**494**	**100.0**

Table 5 represents the benefits of knowledge management to SEC. The questionnaire allowing respondents to reply to the question was set up and found the percentage of support in terms of the benefits of knowledge management. The main benefits of knowledge management were found to be effective in increasing production and it included support of 65.0% of the participants. 21.5% of the respondents have clearly noted the advantages of knowledge management in the increase of the financial performance of the company. The increase in operational performance was noted as the smallest percentage of 13.6 in relation to the benefits of knowledge management.

Table 5. Benefits of knowledge management

Benefits of knowledge management	Frequency	Percent
Effective in increasing production	321	65.0
Increase operational performance	67	13.6
Increase financial performance	106	21.5
Total	**494**	**100.0**

4.3. Correlation analysis

Correlation analysis between the independent and dependent variables is highlighted in Table 6. The organization productivity and efficiency were compared with the knowledge acquisition, knowledge dissemination, and responsiveness to knowledge in respect to Pearson correlation. The Pearson correlation value for responsiveness to knowledge was 0.647**. The Pearson correlation value for knowledge acquisition was 0.447**. The Pearson correlation value for knowledge dissemination was 0.293**. Correlation analysis revealed that there exists a relationship between Knowledge Acquisition and Organizational Productivity and Performance, Knowledge Dissemination and Organizational Productivity and Performance, and Responsiveness to Knowledge and Organizational Productivity and Performance.

Table 6. Correlation analysis

		Knowledge acquisition	Knowledge dissemination	Responsiveness to knowledge
Organizational productivity and efficiency	Pearson Correlation	0.447**	0.293**	0.647**
	Sig. (2-tailed)	0.000	0.000	0.000

Note: ** denotes correlation at the 0.01 level (2-tailed).

4.4. Regression analysis

Regression analysis was conducted to show the association between independent and dependent variables. Hence the questionnaire covers the questions related to this concept and carried out the below analysis.

Table 7 displays the regression analysis related to organization productivity and efficiency with respect to knowledge acquisition, knowledge dissemination, and responsiveness to knowledge. Results shows that knowledge acquisition is positive (β= 0.209, F= 124.133; p=0.000**), knowledge dissemination is negative (β= -0.079, F= 124.133; p=0.000**), and responsiveness to knowledge is positive (β= 0.687, F= 124.133; p=0.000**). The value of the R-square is 0.432.

Table 7. Regression analysis

Model	Unstandardized coefficients		R -Square	F-value	P-value
	B	Std. Error			
Constant	0.467	0.174	0.432	124.113	0.000**
Knowledge acquisition	0.209	0.062			
Knowledge dissemination	-0.079	0.048			
Responsiveness to knowledge	0.687	0.049			

Note: The dependent variable is organizational productivity and efficiency.

4.5. Chi-Square test

Chi Square test was carried out for the purpose of examining the hypothesis related to the association between KM practices (knowledge acquisition, knowledge dissemination, and responsiveness to knowledge) and organization's productivity and efficiency.

Table 8 shows results of Chi-Square test that represents the relationship between knowledge acquisition and organization productivity and efficiency. The value of Chi-square of $\chi 2$ = 386.138a at an importance level of 0.000, which appears to be higher than that of the tabled critical value of Y = 269.834. It can be concluded, analytically, that there is a relationship between knowledge acquisition and organization productivity and efficiency at α = 0.00, thus hypothesis H1 is accepted.

Table 8. Knowledge acquisition and organization's productivity and efficiency

	Value	df	Asymptotic significance (2-sided)
Pearson chi-square	386.138	121	0.000
Likelihood ratio	269.834	121	0.000
Linear-by-linear association	98.471	1	0.000
N of Valid cases	494		

Note: Regarding Pearson chi-square, 113 cells (78.5%) have expected count less than 5. The minimum expected count is 0.00.

Table 9 reveals results of Chi-Square test that represents the relationship between knowledge dissemination and organization productivity and efficiency. The value of Chi-square of $\chi 2 = 518.839a$ at an importance level of 0.000, which appears to be higher than that of the tabled critical value of Y = 331.043. It can be concluded, analytically, that there is a relationship between knowledge dissemination and organization productivity and efficiency at $\alpha = 0.00$, thus hypothesis H2 is accepted.

Table 9. Knowledge dissemination and organization's productivity and efficiency

	Value	df	Asymptotic significance (2-sided)
Pearson chi-square	518.839[a]	143	0.000
Likelihood ratio	331.043	143	0.000
Linear-by-linear association	42.355	1	0.000
N of valid cases	494		

Note: Regarding Pearson chi-square, 141 cells (83.9%) have expected count less than 5. The minimum expected count is 0.00.

Table 10 highlights results of Chi-Square test that represents the relationship between responsiveness to knowledge and organization productivity and efficiency. The value of Chi-square of $\chi 2 = 888.291a$ at an importance level of 0.000, which appears to be higher than that of the tabled critical value of Y = 484.902. It can be concluded, analytically, that there is a relationship between responsiveness to knowledge and organization productivity and efficiency at $\alpha = 0.00$, thus hypothesis H3 is accepted.

Table 10. Responsiveness to knowledge and organization productivity and efficiency

	Value	df	Asymptotic significance (2-sided)
Pearson chi-square	888.291	110	.000
Likelihood ratio	484.902	110	.000
Linear-by-linear association	206.186	1	.000
N of valid cases	494		

Note: Regarding Pearson chi-square, 103 cells (78.0%) have expected count less than 5. The minimum expected count is 0.00.

5. Discussion

An overall analysis of the results revealed that there is a positive and vital influence of KM methods on increasing effectiveness and efficiency of an organization by improving the ways of managing, disseminating and responding to knowledge.

To show the relationship between organization productivity and efficiency and KM practices namely: knowledge acquisition, knowledge dissemination, and responsiveness to knowledge, chi-square test and regression analysis were used. Findings show that there is a positive and significant impact of knowledge acquisition on improving productivity and efficiency of Saudi Electricity Company. In line with this, the study of Amah (2014) shows the positive connection of organization's efficiency and acquisition of sustainable knowledge at the context of the manufacturing trade of Nigeria. The study of Daud and Yusoff (2010), debated that information or knowledge which is taken as procedural and declarative is productive and efficient when it is fixed with the company's routines, practices and operations. It was shown by Eresia-Eke and

Makore (2017) that the acquisition of knowledge is greater within organizations which really focus on projects and which ultimately results in good company performance.

Findings show also that there is a positive and significant impact of knowledge dissemination on improving productivity and efficiency of Saudi Electricity Company. The circulation of Knowledge which is also referred as knowledge transferring or sharing and exchanging information, knowledge and expertise among employees of the organization (Omotayo, 2015). As per the viewpoint of Nawab *et al.* (2015), knowledge management is considered to be the responsiveness to knowledge. In addition to this, in the discernment of the company on knowledge management, the knowledge dispersal and knowledge obtaining augments the method of capacity of knowledge. And hence, this is to close that the knowledge management systems are postulated like the behavior of the company where the knowledge is shared, obtained, and answered spontaneously or distributed (Abubakar *et al.* 2019).

Furthermore, findings show that there is a positive and significant impact of responsiveness to knowledge on improving productivity and efficiency of Saudi Electricity Company. With regard to the transforming atmosphere of the business, few studies highlighted the responsiveness to knowledge. According to the perception of Nawaz *et al.* (2014), for the reason to develop sales, it was considered that the KM procedures which are responsiveness to knowledge, knowledge dispersal, and knowledge obtaining dedicates by enhancing fresh adaptation, innovation and fresh commodity growth. Nawab *et al.* (2015) explained that to achieve trade performance via innovation in banking sector, knowledge management had a contingent vital effect.

6. Conclusion and recommendations

This study reveals that KM practices respectively: knowledge acquisition, knowledge dissemination, and responsiveness to knowledge are all factors impacting the performance of the Saudi Electricity Company. Findings of the study revealed the existence of relationship between these variables. It is claimed that with the implementation of proper KM strategies and practices, any organization in any industry can achieve competitive advantage.

While KM dimensions can impact organizational productivity and efficiency directly, it is ascertained that there could be factors that can mediate the relationship between the variables considered in this study. For instance, KM tends to influence mostly the performance of employees which in turn affects organizational performance. Considering this aspect, future researches can consider employee performance as a mediating factor which could mediate the relationship between KM dimensions and organizational productivity and efficiency. Furthermore, future studies can consider testing the proposed framework in different organizational setting and across different industries.

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