

# The Influences of Human Capital (Knowledge, Skills, and Competency) on Organizational Performance: A PLS-SEM Technique

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**Abstract:** *The current research uses structural equations modeling (SEM) via PLS software in order to evaluate the 533 valid questionnaires. This is done for assessing the proposed model based on human capital variables for determining its impact on organizational performance in the UAE's public sector. The main independent constructs are knowledge, skills and competency. The dependent construct covers organizational performance. The research shall define the relationship between the various constructs. This work has improved our insight into the importance of human capital. The study results have shown prediction of organizational performance by independent variables stating a 32.8% of variance. The results have the potential to give further insights into enhancing public organizations' performance.*

**Keywords:** *Human capital; knowledge; skills; competency; organizational performance; UAE*

## I. INTRODUCTION

As organizations in general are increasingly exposed to the global arena, they have been not only faced with the challenge of dealing with cultural differences whilst maintaining performance levels [1] but they also have had to deal with collaborative development within and between the organizations [2]. There are some of the vital areas the managers needs to focus on like physical team, virtually managed project teams, defined project goals, transparency in the project, adequate controlling methods and predefined ones, communication efficiencies and human capital assets in order to strive to overcome towards organizational success [3]. Regardless the nature and goal of organizations, the management of future organization involves network organizational structures and virtual development teams.

Due to the current environments that is known to be very competitive and innovative, the link between organizational performance (OP) and transformational leadership is never clearer, where competitive advantage is only obtained through innovativeness that enable organizations to improve

their outcomes [4, 5]. In a situation like this, managers must focus in motivating their employees to be part of the innovation processes, and continuously gain new ideas that would enable the organizations in introducing innovative market specific products [6]. Transformational leadership and human resource practices are seen as triggers of competence and innovation by recent literature study [7]. Further, Heffernan, Harney, Cafferkey, & Dundon (2016) [8] stated a need for further work relating to variables that mediate between the two triggers mentioned above.

The current research objective states the effect of human capital in terms of knowledge, skills, and competency on public organization performance in the UAE.

## II. LITERATURE REVIEW

### A. Organizational Performance

One of the major variables for management is OP [9]. It evaluates the standard or prescribed indicators relating to the environmental responsibility that includes regulatory compliance, cycle time, reduction of waste and productivity, in addition to efficiency and effectiveness. Organizational performance is the researchers' eventual dependent variable who is engaged in managerial studies. This wide variable is considered important in enabling the organization's managers as well as the researchers for assessing the overtime and matching them to their rival organizations [10]. This can be proved with persistent implementation of OP as a dependent variable (Richard et al., 2009).

### B. Human Capital (HC)

HC is defined by many social scientists and economists refers to the individuals' knowledge, skills and competency of the workforce, representing the critical resources to the organizations [11-14]. Human capital shows a vital role in helping an organization to achieve its aims in an uncertain environment [15]. It acts as a lever to attain competitive advantage. Also, is a suitable resource from which to create innovation [16]. Wang & Chang (2005) [17] reveal that the accumulation of Human capital ought to maximize the firm's outcomes. For example, successful innovation, which is a central source of an organization's profits, depends mainly on unique assets such as Human capital [18].

Drucker (1977) [19] and Toffler (1990) [20] decide on to link knowledge to information, and used the terms interchangeably. On the other

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hand, Nonaka & Takeuchi (1995) [21] argued that knowledge has two components namely, explicit knowledge and tacit knowledge. In the latter sense, knowledge can appear to edge into the areas of skills and attitudes. Generally, employees will accumulate knowledge through formal and informal leanings, trainings and experiences. Winter (1987) [22], suggested that tacit knowledge is the most important knowledge asset that the organizations can have, which consider as difficult to create or share. Nonaka, von Krogh, & Voelpel (2006) [23] argued that tacit knowledge can be shared through the individuals' groups and communities, which in return can connect and their knowledge. Moreover, with the new global economic, there have been a need to employ a ready skilled individuals, this in return will benefit the organizations with minimum cost [24]. In addition, skillful human capital is a key source for almost all the organizations to deliver high quality services [25]. Moreover, to improve the quality of the organizations performance, managers and leaders should retain the qualified and skillful individuals in their organizations [24].

Due to the deterioration of public resources to fulfil the increasing demand for public services, enhancing performance in the public sector is especially needed today. Public organizations' leaders have a vital role to play to improve performance and the competencies of their employees which is very crucial for their success. The competency notion to enhancing performance focuses on inputs such as the knowledge, skills, and capabilities for achievement that the employee brings to the organization, beside other personal qualities wanted to be successful. Competency based methods to management allows employees to strive for their career development. Traditional approaches contrast with the competency approach in that they are more concerned with outputs and how [26]. Consequently, the following hypothesis is proposed:

- H1. Knowledge significantly has a positive impact on organizational performance.
- H2. Skills significantly has a positive impact on organizational performance.
- H3. Competency significantly has a positive impact on organizational performance.

Figure 1 shows the proposed study model which contain three independent variables (knowledge, skills, and competency) and one dependent variable (organizational performance).

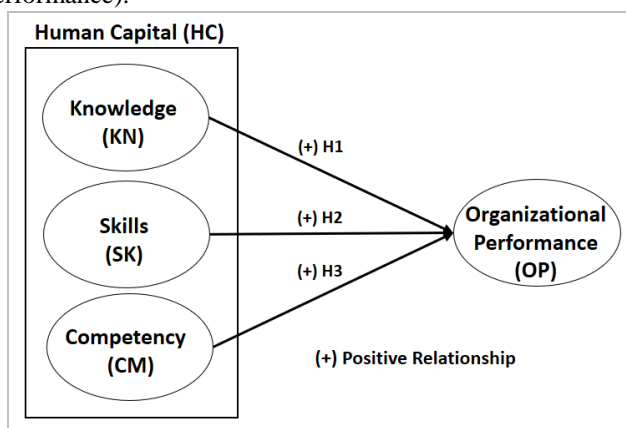


Table 1: Measurement assessment results

Fig 1: The proposed model

### III. RESEARCH DESIGN AND METHODOLOGY

#### A. Development of Instrument and Data collection

The creation of a tool for this research involved a questionnaire of 34 questions, and on the basis of the literature on human resource management, the research employed a multi-item Likert scale [27]. The parameters were evaluated using a Likert scale recommended in the earlier studies [28]. The information was gathered by delivering a self-managed questionnaire 'in-person' between November 2018 and December 2018 to public organizations in Abu Dhabi in UAE. The number of the distributed questionnaires was 650, which 533 responses were considered suitable for the analysis. According to Tabachnick & Fidell (2012) [29] and Krejcie & Morgan (1970) [30], the sample size was seen as sufficient.

#### IV. DATA ANALYSIS AND RESULTS

Partial Least Squares (PLS) was utilized to test the research model, using the SmartPLS 3.0 software. A two-stage analytical method [31] was used which comprising (i) measurement model assessment (validity and reliability) and (ii) structural model assessment (testing the hypothesized relationships).

##### A. Descriptive analysis

Competency scores the highest with mean 4.31 out of 5.0, with a standard deviation of 0.95. Organizational performance scores the lowest with mean 3.51 out of 5.0, with a standard deviation of 1.237, as Table 1 shows.

##### B. Measurement Model Assessment

Construct reliability as well as validity (comprising discriminant and convergent validity) were used to examine the measurement model. The particular alpha coefficients of Cronbach were tested to determine the reliability of every core parameter in the measurement model (construct reliability). The quantities of all the unique alpha coefficients of Cronbach in this research ranged from 0.924 to 0.947, which went beyond the proposed value of 0.7 [32]. Moreover, for inspecting construct reliability, all the CR (composite reliability) values went beyond 0.7 except KN3, SK8, and OP11 [33, 34]. Thus, as Table 1 shows, construct reliability have been fulfilled as Cronbach's CR and alpha were rather error-free for all the parameters.

Constructs	Item	Loading (> 0.5)	M	SD	$\alpha$ (> 0.7)	CR (> 0.7)	AVE (> 0.5)
Knowledge (KN)	KN1	0.866	3.95	1.036	0.960	0.966	0.760
	KN2	0.822					
	KN3	Deleted					
	KN4	0.890					
	KN5	0.885					
	KN6	0.901					
	KN7	0.871					
	KN8	0.886					
	KN9	0.855					
	KN10	0.865					
Skills (SK)	SK1	0.833	4.09	1.027	0.957	0.963	0.745
	SK2	0.893					
	SK3	0.856					
	SK4	0.887					
	SK5	0.883					
	SK6	0.823					
	SK7	0.877					
	SK8	Deleted					
	SK9	0.849					
	SK10	0.863					
Competency (CM)	CM1	0.906	4.31	0.95	0.934	0.958	0.883
	CM2	0.962					
	CM3	0.951					
Organizational Performance (OP)	OP1	0.847	3.51	1.237	0.955	0.961	0.712
	OP2	0.831					
	OP3	0.833					
	OP4	0.866					
	OP5	0.871					
	OP6	0.876					
	OP7	0.877					
	OP8	0.866					
	OP9	0.790					
	OP10	0.776					
	OP11	Deleted					

Note: M=Mean;CR = Composite Reliability;  $\alpha$ = Cronbach's alpha; AVE = Average Variance Extracted; SD=Standard Deviation.

Key: KN: Knowledge, SK: Skills, CM: Competency, OP: Organizational Performance

The degree to which the articles distinguish among concepts or measure different constructs is demonstrated by discriminant validity. Cross-loadings as well as Fornell-Larcker were employed to analyse the measurement model's discriminant validity. Generally, cross-loadings are employed as the initial step in examining discriminant

validity of the indicators. In this research, the indicators outer loadings on a construct went beyond all the cross-loadings with other parameters, and thus the cross-loading condition had met the requirements (refer to Table 2).

Table 2: Results of discriminant validity by the cross loading

TABLE I.	TABLE II.	KN	TABLE III.	SK	TABLE IV.	CM	TABLE V.	OP
TABLE VI.	KN1	<b>0.866</b>	TABLE VIII.	0.550	TABLE IX.	0.459	TABLE X.	0.432
TABLE XI.	KN2	<b>0.822</b>	TABLE XIII.	0.585	TABLE XIV.	0.477	TABLE XV.	0.427
TABLE XVI.	KN4	<b>0.890</b>	TABLE XVIII.	0.533	TABLE XIX.	0.449	TABLE XX.	0.386
TABLE XXI.	KN5	<b>0.885</b>	TABLE XXIII.	0.531	TABLE XXIV.	0.453	TABLE XXV.	0.469
TABLE XXVI.	KN6	<b>0.901</b>	TABLE XXVIII.	0.544	TABLE XXIX.	0.444	TABLE XXX.	0.422
TABLE XXXI.	KN7	<b>0.871</b>	TABLE XXXIII.	0.498	TABLE XXXIV.	0.419	TABLE XXXV.	0.394



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TABLE XXXVI. KN8	TABLE XXXVII. <b>0.886</b>	TABLE XXXVIII. 0.566	TABLE XXXIX. 0.490	TABLE XL. 0.485
TABLE XLI. KN9	TABLE XLII. <b>0.855</b>	TABLE XLIII. 0.537	TABLE XLIV. 0.436	TABLE XLV. 0.392
TABLE XLVI. KN10	TABLE XLVII. <b>0.865</b>	TABLE XLVIII. 0.571	TABLE XLIX. 0.511	TABLE L. 0.454
TABLE LI. SK1	TABLE LII. 0.579	TABLE LIII. <b>0.833</b>	TABLE LIV. 0.475	TABLE LV. 0.339
TABLE LVI. SK2	TABLE LVII. 0.567	TABLE LVIII. <b>0.856</b>	TABLE LIX. 0.500	TABLE LX. 0.364
TABLE LXI. SK3	TABLE LXII. 0.589	TABLE LXIII. <b>0.887</b>	TABLE LXIV. 0.559	TABLE LXV. 0.409
TABLE LXVI. SK4	TABLE LXVII. 0.593	TABLE LXVIII. <b>0.883</b>	TABLE LXIX. 0.519	TABLE LXX. 0.391
TABLE LXXI. SK5	TABLE LXXII. 0.515	TABLE LXXIII. <b>0.823</b>	TABLE LXXIV. 0.461	TABLE LXXV. 0.345
TABLE LXXVI. SK6	TABLE LXXVII. 0.487	TABLE LXXVIII. <b>0.877</b>	TABLE LXXIX. 0.591	TABLE LXXX. 0.453
TABLE LXXXI. SK7	TABLE LXXXII. 0.468	TABLE LXXXIII. <b>0.849</b>	TABLE LXXXIV. 0.616	TABLE LXXXV. 0.465
TABLE LXXXVI. SK9	TABLE LXXXVII. 0.555	TABLE LXXXVIII. <b>0.863</b>	TABLE LXXXIX. 0.593	TABLE XC. 0.431
TABLE XCI. SK10	TABLE XCII. 0.552	TABLE XCIII. <b>0.893</b>	TABLE XCIV. 0.595	TABLE XCV. 0.474
TABLE XCVI. CM1	TABLE XCVII. 0.473	TABLE XCVIII. 0.563	TABLE XCIX. <b>0.906</b>	TABLE C. 0.420
TABLE CI. CM2	TABLE CII. 0.517	TABLE CIII. 0.620	TABLE CIV. <b>0.962</b>	TABLE CV. 0.485
TABLE CVI. CM3	TABLE CVII. 0.501	TABLE CVIII. 0.613	TABLE CIX. <b>0.951</b>	TABLE CX. 0.475
TABLE CXI. OP1	TABLE CXII. 0.384	TABLE CXIII. 0.372	TABLE CXIV. 0.404	TABLE CXV. <b>0.847</b>
TABLE CXVI. OP2	TABLE CXVII. 0.389	TABLE CXVIII. 0.378	TABLE CXIX. 0.394	TABLE CXX. <b>0.831</b>
TABLE CXXI. OP3	TABLE CXXII. 0.404	TABLE CXXIII. 0.379	TABLE CXXIV. 0.406	TABLE CXXV. <b>0.833</b>
TABLE CXXVI. OP4	TABLE CXXVII. 0.372	TABLE CXXVIII. 0.385	TABLE CXXIX. 0.420	TABLE CXXX. <b>0.866</b>
TABLE CXXXI. OP5	TABLE CXXXII. 0.383	TABLE CXXXIII. 0.413	TABLE CXXXIV. 0.438	TABLE CXXXV. <b>0.871</b>
TABLE CXXXVI. OP6	TABLE CXXXVII. 0.426	TABLE CXXXVIII. 0.462	TABLE CXXXIX. 0.467	TABLE CXL. <b>0.876</b>
TABLE CXLI. OP7	TABLE CXLII. 0.445	TABLE CXLIII. 0.425	TABLE CXLIV. 0.421	TABLE CXLV. <b>0.877</b>
TABLE CXLVI. OP8	TABLE CXLVII. 0.493	TABLE CXLVIII. 0.453	TABLE CXLIX. 0.435	TABLE CL. <b>0.866</b>
TABLE CLI. OP9	TABLE CLII. 0.476	TABLE CLIII. 0.407	TABLE CLIV. 0.376	TABLE CLV. <b>0.790</b>
TABLE CLVI. OP10	TABLE CLVII. 0.387	TABLE CLVIII. 0.346	TABLE CLIX. 0.372	TABLE CLX. <b>0.776</b>

**Key:** KN: Knowledge, SK: Skills, CM: Competency, OP: Organizational Performance.

Table 3 shows the outcomes for discriminant validity by employing the Fornell-Larcker condition. It was discovered that the AVEs' square root on the diagonals (displayed in bold) is bigger than the correlations among constructs (corresponding row as well as column values), suggesting a strong association between the concepts and their respective

markers in comparison to the other concepts in the model [35, 36]. According to Hair et al. (2017) [37], this indicates good discriminant validity. Furthermore, the exogenous constructs have a correlation of less than 0.85. Therefore, all constructs had their discriminant validity fulfilled satisfactorily.

Table 3: Results of discriminant validity by Fornell-Larcker criterion

TABLE CLXI.	TABLE CLXII. CM	TABLE CLXIII. KN	TABLE CLXIV. OP	TABLE CLXV. SK
TABLE CLXVI. CM	TABLE CLXVII. <b>0.940</b>	TABLE CLXVIII.	TABLE CLXIX.	TABLE CLXX.
TABLE CLXXI. KN	TABLE CLXXII. 0.529	TABLE CLXXIII. <b>0.872</b>	TABLE CLXXIV.	TABLE CLXXV.
TABLE CLXXXVI. OP	TABLE CLXXXVII. 0.491	TABLE CLXXXVIII. 0.495	TABLE CLXXXIX. <b>0.844</b>	TABLE CLXXX.
TABLE CLXXXI. SK	TABLE CLXXXII. 0.638	TABLE CLXXXIII. 0.628	TABLE CLXXXIV. 0.479	TABLE CLXXXV. <b>0.863</b>

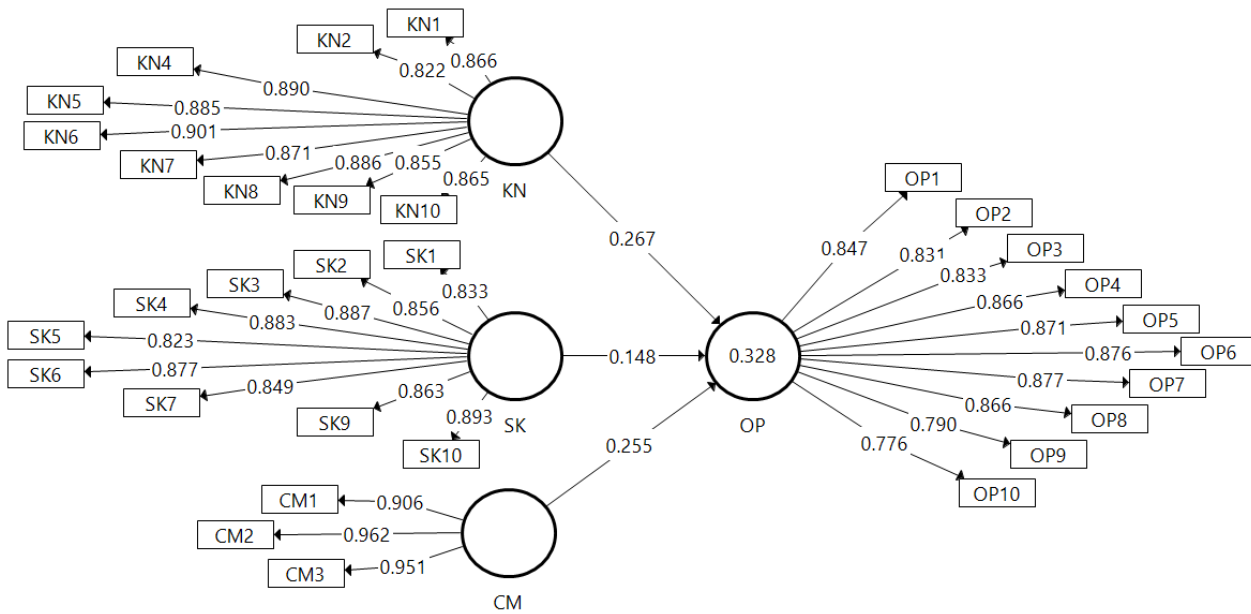
**Key:** KN: Knowledge, SK: Skills, CM: Competency, OP: Organizational Performance

**C. Structural Model Assessment**

The structural model can be tested by computing beta ( $\beta$ ),  $R^2$ , and the corresponding t-values via a bootstrapping procedure with a resample of 5,000 [37].







**Key:**KN: Knowledge, SK: Skills, CM: Competency, OP: Organizational Performance  
Fig 2: PLS algorithm results

Figure 2 and Table 4 depict the structural model assessment, showing the results of the hypothesis tests, with 3 out of the 3 hypotheses are supported. Knowledge, skills, and competency significantly predict organizational performance. Hence, H1, H2, and H3 are accepted with ( $\beta = 0.267, t = 4.187, p < 0.001$ ), ( $\beta = 0.148, t = 2.088, p < 0.05$ ), and ( $\beta = 0.255, t = 4.461, p < 0.001$ ) respectively. The strength of the relationship between exogenous and endogenous constructs are measured by the standardized

path coefficients, which in this case show that the direct effects of Knowledge on organizational performance is much stronger than the influence of other variables. Thirty-three percent of the variance in organizational performance is explained by knowledge, skills, and competency. The values of R<sup>2</sup> have an acceptable level of explanatory power, indicating a substantial model [36].

Table 4: Structural assessment results

Hypothesis	Relationship	Std Beta	Std Error	t-value	p-value	Decision	R <sup>2</sup>
H1	KN→OP	0.267	0.064	4.187	0.000	Supported	0.33
H2	SK→OP	0.148	0.071	2.088	0.019	Supported	
H3	CM→OP	0.255	0.057	4.461	0.000	Supported	

Key: KN: Knowledge, SK: Skills, CM: Competency, OP: Organizational Performance

## V. DISCUSSION

The main objective of the current study is to address the impact of human capital on organizational performance within public sector UAE. Based on the proposed model, this study improves the understanding of the role played by human capital in terms of skills, knowledge and competency in public sector organizations. The discussions are further detailed in the following.

The study found that knowledge positively affect organizational performance among organizations in public sector in UAE, this is supported by previous studies [8, 38]. It is explained by the fact that the more the employee can learn what is necessary for a new task, refer to best practices and apply them, use the Internet to obtain knowledge, share the information and knowledge, improves task efficiency by sharing information and knowledge, search information for tasks from various knowledge sources, understand computer programs needed to perform the tasks, and accept new knowledge and apply it. The more the organization can be industry leader, forward-looking organization, responsive to

local and international market needs, experience growth in revenue, market share and profit, improve operating efficiency, achieve and sustain superior performance, achieves a high success rate in new service launched, and continuously produce competitive services.

Further the study also found that skills positively affects organizational performance among organizations in public sector in UAE, this is supported by previous studies [9, 39]. It is explained by the fact that the more the employee understands and contributes to the organizational goals, knows the process of making a decision, knows how to weigh the relative importance among different issues, able to change decisions based upon new information, respects the thoughts and opinions of others in the team, treats others with courtesy, accepts individual differences among members, and contributes solutions to resolve problems, the more the organization can be industry leader, forward-looking organization, responsive to local and international market needs, experience growth in revenue, market share and profit, improve operating efficiency, achieve and sustain



superior performance, achieves a high success rate in new service launched, and continuously produce competitive services.

Lastly, the study also found that competency positively affects organizational performance among organizations in public sector in UAE, this is supported by previous studies [7, Samad, 2012). It is explained by the fact that the more the employee compete to perform his/her job, become effective in doing the job, and actually is qualified to do the job well, the more the organization can be industry leader, forward-looking organization, responsive to local and international market needs, experience growth in revenue, market share and profit, improve operating efficiency, achieve and sustain superior performance, achieves a high success rate in new service launched, and continuously produce competitive services.

**VI. IMPLICATIONS, LIMITATIONS AND FUTURE DIRECTIONS**

Employees are the most valuable asset in any organization. Thus, it is crucial for organizations to have capable managers to encourage and inspire their workforce in their daily tasks and fulfill the organizational goals. Previous research have examined those relationships of human capital to gather information about the knowledge, skills, and competency. To further contribute to this area, this research can be seen as an extension of the previous work on human capital as it enriches the theory by adding to the factors of human capital another actor named competency. Moreover, it has examined such interactions in a knowledge-based context which was the public sector. The research outcome revealed these positive cooperative interactions, these prescribed variables have explained 32.8% of organizational performance variety.

Public sector organizations in UAE should maintain and promote knowledge gaining among its employees to support

innovation to enhance the performance of the organizations. Subsequently, in public organization the suitable person must be in place, to execute the job and provide employees with the necessary training to enhance their performance and capabilities.

As for limitation, since this study was conducted in organizations in the UAE public sector, the findings may not be generalized to all UAE private sector. With regard to future directions, Future research may merge both qualitative and quantitative methods in measuring organizational performance. Besides, it can use interviews and/or case studies to gather in-depth qualitative data, which would be valuable to learn the possible trends of research.

**VII. CONCLUSION**

The purpose of this article was to examine the impact of human capital on the organizational performance in public sector organizations in the UAE. It has provided evidence from leading scholars in the field on the notion of ‘human capital’ and how investment in education and training is essential to build the employees knowledge and skills required for development of the building blocks of any organization (individuals) and consequently in organizations performance. Moreover, competency of the individuals in any organization is important as it is driver for using and utilizing their knowledge and skills for the good of the organization. Knowledge, skills, and competency were found to influence the performance of the organization. The independent variables significantly explain 32.8% of organizational performance. The implications of this study have been deliberated, some directions for future research have been suggested.

**APPENDIX**

Appendix A

Instrument for variables

Variable	Measure	Source
Knowledge (KN)	KN1: The employee can learn what is necessary for a new task	[40]
	KN2: The employee can refer to best practices and apply them to the task.	
	KN3: The employee can use the Internet to obtain knowledge for the task.	
	KN4: The employee shares the information and knowledge necessary for the task.	
	KN5: The employee improves task efficiency by sharing information and knowledge.	
	KN6: The employee fully understands the core knowledge necessary for his tasks.	
	KN7: The employee obtains useful information and suggestions from brainstorming meetings without spending too much time.	
	KN8: The employee search information for tasks from various knowledge sources administered by the organization.	
	KN9: The employee understands computer programs needed to perform the tasks and use them well.	
	KN10: The employee is ready to accept new knowledge and apply it to his tasks when necessary.	

Skills (SK)	SK1: The employee understands and contribute to the organizational goals. SK2: The employee knows the process of making a decision. SK3: The employee knows how to weigh the relative importance among different issues. SK4: The employee solicits input for decision making from his team members. SK5: The employee is able to change decisions based upon new information. SK6: The employee respects the thoughts and opinions of others in the team. SK7: The employee treats others with courtesy. SK8: The employee accepts individual differences among members. SK9: The employee can identify potential problems readily. SK10: The employee willingly contributes solutions to resolve problems.	[41]
Competency (CM)	CM1: The employee is competing in perform his job. CM2: The employee is effective in doing his work. CM3: The employee is qualified to do the job well. OP1: Our organization industry leader. OP2: Our organization is a forward-looking organization. OP3: Our organization is quickly responsive to local and international market needs. OP4: Our revenue growth is improving.	[41]
Organizational Performance (OP)	OP5: Our market share is improving. OP6: Our profit growth is improving. OP7: Our organization is improving operating efficiency. OP8: Our organization is always able to achieve and sustain superior performance. OP9: Our organization practices 'On Time Delivery' of its services to the customers. OP10: Our organization achieves a high success rate in new service launched. OP11: Our organization is continuously produce competitive services.	[42]

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