Impact of Knowledge Management on Organizational Performance of Public Sector Organizations in Ethiopia: the roles of Creation, Practice and Sharing

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Abstract

Knowledge is a key organizational asset that creates and adds value to the organization's products and services. Based on this general framework, the paper examined the impact of knowledge management practices on organizational performance of Ethiopian public sectors. The study used a mixed research approach with descriptive and explanatory research designs. Data was collected with cross-sectional survey instrument and semi-structured interview. 756 questionnaires were collected from the sample respondents which makes 95% response rate. The collected data was analyzed using both descriptive and inferential statistics. Hence, exploratory and confirmatory factor analyses were utilized by using SEM modeling for quantitative data and narrative analysis was employed for qualitative data. Accordingly, the results of the study confirmed that, exploitation of the existing knowledge is practices are implemented in the sampled public organization. But, exploration of new knowledge is not well-developed. Moreover, all knowledge management creation practices are not well developed and practiced as expected in the selected public sector organizations. Specifically, externalization and combination are not well-developed and implemented. Finally, KM significantly and positively affects organizational performance. Particularly, knowledge exploitation significantly and positively affects organizational performance as compared to knowledge exploration. Based on these findings, the study recommends that, there is a need to design and implement knowledge management strategy and align knowledge management strategy with organizational strategy. A human resource management system that promotes knowledge sharing and transfer (reward & motivation systems) and retaining experienced and best performers should be designed and implemented.

Key Words: Knowledge, Performance, Sharing

1. Introduction

The impact of effective knowledge management (KM) on organizational performance is well recognized and its role in explain the difference in performance of the firms has been a passionate debate among managers, consultants, and academics (Martin-de Castro, Lopez-Saez, Delgado-Verde, Donate, & Guadamillas, 2011) In the present turbulent and continuously changing global environment, the adoption and implementation of effective knowledge management strategies and practices has become crucial in achieving sustained competitive advantage (Nieves & Haller, 2014). The knowledge-based perspective of the organization conceptualizes firms as bearers of tacit, social, and path-dependent organizational knowledge (Jennex, 2005). Effective knowledge management practices have a significant benefit for individual and organizational success such as innovation, creativity, and performance (Fullwood, Rowley, & McLean, 2018).

Although, knowledge management has proven to benefit organizational and individual level performance outcomes, it is generally believed that scant implementation of these practices in developing countries (Mpofu, 2011). Public sector organizations are now a days encountering growing pressure to innovate, sustain quality service delivery and improve performance, Knowledge Management practices are found to be instrumental and potentially useful for dealing with these problems that are unstructured, lack one-off solutions and requires managers to create, share and use knowledge within and across public sector organizations (Ejeh, 2017).

The earlier research in this area confines mostly to the developed countries and to private manufacturing industries particularly and the health sector. Moreover, the focus was on exploring the effect of explicit knowledge management practices rather than the tacit knowledge dimension (Asrar-ul-Haq & Anwar, 2016). The present study tries to fill this gap by examining the status of knowledge management practices in the Ethiopian public sector organizations. Thus the purpose of this study is to assess the current knowledge management practices in the public sector setting using Ethiopian public sector organizations as a case. The present study is an effort in this direction and attempts to evaluate the knowledge management practices in the public sector organizations in Ethiopia. The study has explored the current practice of knowledge management and knowledge sharing behavior employees. It has also examined the effect of knowledge management practices on organizational performance.

2. Review of Literature

2.1 Conceptual Review

Knowledge has been identified as the most fundamental and strategic resource for any type of organizations (Ismail & Yusof, 2009). Particularly in the current competitive environment, knowledge management has become important for public sector organizations to improve service delivery. Thus, public sector organizations should pay attention to the formulation of policies and strategies for effective knowledge management and sharing in order to enhance service delivery.

2.2.1 Knowledge Exploration and Exploitation

Knowledge exploitation is the refinement and extension of the existing competencies, technologies, paradigms; a refinement that will lead to returns that are positive, near and predictable. Whereas, exploration is the experimentation of new alternatives, with returns that are far away on time, uncertain, and usually negative (Popadiuk & Vidal, 2009).

March (1991), in his seminal article, when looking from an organizational learning point of view, argues that there is a relationship between exploration and exploitation in the adaptive process in the organizations. Exploration refers to the actions and activities related to research, search, risk, experimentation, playing, flexibility, discovery, and innovation. Exploitation refers to refinement, choice, production, efficiency, selection, implementation and execution (March, 1991).

In general, exploration and exploitation require significantly different structures, processes, strategies, capacity, and culture. In general, exploration is associated with an organic structure, systems that are not rigid, improvisation, and autonomy. Exploitation, on the other hand, is associated with mechanical structures, more rigid systems, routine, control, and bureaucracy (Holmqvist, 2004).

2.2.2 Knowledge Conversion Processes

Knowledge management can be viewed as a system that integrates people, process and technology to achieve long term and sustainable results by increasing performance through learning (Firestone, McElroy, Gorelick, & Tantawy-Monsou, 2005). Choo and Bontis (2002) point out that the most widely cited aspect of the model is the continuously

expanding cycle of four processes that create knowledge by converting tacit knowledge into explicit knowledge (the socialization-externalization-combination-internalization or SECI model). An organization creates knowledge through the interactions between explicit knowledge and tacit knowledge. Explicit and tacit knowledge grow in both quality and quantity during this process of knowledge conversion.

2.2.3 Knowledge Management and Performance

There is little doubt that knowledge is a critical asset for any company. To streamline and improve the efficiency and quality of organizational process, understanding how knowledge integrates and flows throughout the organization is necessary. Moreover, organization's competitive advantage and operational success is largely dependent on its ability to identify, integrate and utilize knowledge successfully.

In the last two decades, the practice of KM and its impact on organizational performance has received much attention from the academicians and practitioners. According to McKeen, Zack, and Singh (2006), the assumption underlying the practice of KM is that by identifying, locating and sharing useful knowledge, organizational performance will improve. In prior empirical researches, KM has been linked with non-financial performance outcomes such as: quality, innovation and productivity.

2.3 Empirical Review

There are a number of studies conducted in the area of knowledge management practices especially in the area of assessing the knowledge sharing practice and the existence of knowledge management strategy. Thus, the following section illustrates, empirical research review regarding the above mentioned topics.

Empirical evidences demonstrated that, staff turnover, both internally and outside highlighted the need for a more strategic approach to knowledge management (Baud, Scott, Pfeffer, Sydenstricker-Neto, & Denis, 2014; Iqbal, Toulson, & Tweed, 2015; Kruger & Johnson, 2010). Likewise, the development strategy for knowledge management was strongly recommended to be supported by the decision makers.

The research conducted by Amare (2014) that aimed to explore solutions of knowledge sharing in banking industry and knowledge sharing behavior was predicted by individual's intention in favor of information exchange and perceived behavioral control.

Knowledge workers' attitudes about sharing knowledge including subjective norms, and perceived behavioral control all predicted knowledge sharing intentions. Thus, positive attitudes toward information sharing and subjective norms around knowledge sharing were positively influenced by the strength of social networks and trust.

The research conducted by Gebreslassie (2011) that aimed to investigate knowledge sharing culture among employees in Mesfin Industrial Engineering (MIE). Thus, the study identified factors that affect knowledge sharing and mechanisms of knowledge sharing in the organization. Accordingly, the study came up with the possible strategy of knowledge sharing which could enhance the performance of the organization.

Overall, the study's findings add to existing knowledge-sharing research by illuminating the factors that influence people's knowledge-sharing actions. Additionally, the study's results also produce insights for the context based framework and strategic roadmap and these insights could be used by organizations in developing realistic strategy that are conducive to knowledge sharing.

3. Methods

The study used a concurrent mixed research approach with descriptive and explanatory research designs. Consequently, in this study both probability and non-probability /purposive/ sampling techniques were applied. Probability sampling approaches include choosing a sizable number of units from a population or from particular subgroups (strata) of a population. They are typically utilized in statistically focused studies. Conversely, non-probability or purposive sampling techniques are mostly used in qualitative studies and involve selecting units (e.g., individuals, groups of individuals institutions) based on specific purposes associated with answering a research study's questions (Teddlie & Yu, 2007). The probability sampling technique used to collect quantitative data through self-administered survey questionnaires.

By reducing the possibility of selection bias and controlling for the potential influence of known and unknown cofounders, this form of sampling technique helps to assure the generalizability of findings. Accordingly, based on the probability sampling technique, a simple random sampling technique was used in order to select respondents for survey questionnaires.

Therefore, to be more inclusive, the sample size is determined based on distinct target

population that comprises organizations which are more exposed to knowledge management and practices. Therefore, the sample is divided into two clusters Addis Ababa Cluster and Regional Cluster that comprises Social Sectors (Education, Justice and Health); Economic and Finance Sectors (Finance, Agriculture and Transport); Capacity Building Sectors (Civil Service Commission, Policy Study, Management Institutes and Research Development Institutes are selected in order to acquire complete and comprehensive understanding of this study context.

Theoretically, these organizations are staffed with professional and skilled human resources who are specialized in the areas research and development. Moreover, these organizations are highly exposed to the implementation of knowledge management which is highly related with research and development practices. According to Civil Service Commission (CSC) (2018), the entire number of civil servants in federal and regional states throughout the country specified with the total of 1,742,402 distributed as to 1,097,341 (67%) male as well as 645,063 (37%) female civil servants; hence, 158,617 (9.1%) and 1,583,787 (90.9%) are from federal and regional public sectors organizations respectively.

Similarly, professionals or experts that have first degree and above in the selected four regional states, Addis Ababa City Administration and federal public sector organization upsurge the total of 1,567,532; thus, detailed as 100,173 from Tigray, 367,301 from Amhara, 515,624 from Oromia and 310,419 from SNNPRS as well as 115,398 from Addis Ababa and 158,617 from federal public organization so as to associate the main purposes of the study context.

In this regard, the following formula provided by Yamane (1967) and Calderon and Gonzales (1993) is employed to decide the sample size for both clusters: $n=N/1+Ne^2$ Where: n= the size of the sample N= the size of the population e^2= the margin of error is 5% (0.0025) Thus, the actual sample size for both clusters is calculated as shown below: n= 274,015/ 1+ 274,015 $(0.05)^2$ = 399 (Addis Ababa and Federal Cluster) and 1,293,517/ 1+ 1,293,517 $(0.05)^2$ = 400 (Regional Cluster).

To investigate the current knowledge management practices in the Ethiopian public sector organizations, both quantitative and qualitative data types were utilized. On the other hand, in order to present a wide range of information, both primary and secondary data sources were utilized in the study to collect quantitative and qualitative data types. Self-administered survey questionnaires and semi-structured interviews were used as primary data sources.

In order to identify the underlying dimension of the variable and to test the theoretical

proposition, exploratory factor analysis and confirmatory factor analysis were used respectively. To test statistical significance of the data computerized quantitative data analysis software was used for the analysis. Hence, SPSS (Statistical Package for Social Science) software program version 24 was used to identify association/ relationship between variables and AMOS (Analysis of Moment Structures) version 21 was utilized in order to test the relationship between the latent variables via structural equation modeling (SEM). On the other hand, thematic analysis was used to analyze the qualitative data gathered through key-informant interviews.

4. Data Analysis and Findings

As it is discussed in the sampling strategy in the previous section, the total sample size of this research was 799. The sample was collected from two clusters (Federal & Addis Ababa cluster and Regional cluster). The first cluster consist 399 samples and the second cluster consists 400 samples. Accordingly, based on the plan all the sample size was collected from both research sites /clusters/. However, during data screening, out of the total sample size collected, 43 questionnaires are incomplete and removed from the analysis. Some missing values were computed by using mean value.

Table 1: Demographic profile of the respondents

Variables		Frequency	Percent (%)	
Gender	Male	463	61.2	
	Female	293	38.8	
Education	Degree (BA/BSC)	446	59.0	
	Masters (MSC/LLM)	280	37.0	
	PHD	18	2.4	
	Other	12	1.6	
Experience	Mean	SD	Minimum	Maximum
	7	4.942	1	35
Age in Years	34	7.034	19	58

Table 1 above displays the demographic characteristics of respondents. As it can be seen from the table, out of the total sample size, 463 (61.2%) of the respondents are male and the rest 293 (38.8%) are female. Regarding the educational level of the respondents, the majority of the respondents are degree holders, which indicates that, they can read and understand the questionnaire items in order to respond accordingly. Hence, out of the total respondents, 446 (595) are first degree graduates, 280 (37%) of the respondents are second degree or master degree holders, 18 (2.4%0 of the respondents are PhD holders and the remaining 12 (1.65) of the respondents are out of the listed educational level categories and fall under the category of other. Moreover, the descriptive statistics result shows that, the

mean work experience of respondents in years is 7 with a standard deviation of 4.9. The minimum work experience is 1 year and the maximum is 35 years. The average age of respondents is 34 years with a standard deviation of 7.034. The minimum age of the respondents is 19 years and the maximum is 58 years.

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4.1 Reliability and Validity

The reliability test was carried out to determine the quality of the measurement items. Internal consistency reliability implies that multiple items measure the same construct, and inter-correlate with one another (Saini, 2013). Accordingly, the reliability of each research variable was measured by using Cronbach's alpha coefficient. A value .70 and above has been considered as the threshold value to achieve internal consistency of research constructs. Hence, the result of the reliability (internal consistency) of research constructs is displayed in the following table.

Table 2: Reliability

No	Variables	No of Items	Cronbach's Alpha
1	Knowledge Management Practices	12	.900
2	Knowledge Creation & Conversion	14	.906
3	Knowledge Sharing	6	.857
4	Strategy	6	.829
5	Information Communication Technology (ICT)	4	.856
6	Culture	8	.813
7	Human Resource Management	6	.856
8	Leadership	9	.883
9	Performance (Outcomes)	6	.902

4.2 Knowledge Management Practices

During the first exploratory factor analysis (EFA) items 1 and 2 from the knowledge exploitation scale items loaded below the minimum threshold value. Since the intial EFA didn't achieve the model fit measures, the EFA was again performed after removing item 1 and item 2 from the knowledge exploitation scale items. Therefore, the final EFA produced a perfect model fit measures as indicated in the following section.

The Kaiser-Meyer-Olkin measure of sampling adequacy was done before the factor analysis for comparing the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients. The large value of KMO measure indicated that a factor analysis of the variables was a good idea (Saini, 2013). KMO and Bartlett's tests showed value of *0.899* at significance level of 0.000, with degree of freedom 45 and approximate chi-square (X^2) value of 3511.680. This shows that the degree of common variance among the variables was quite high; therefore factor analysis could be conducted.

Figure 1: Results of Structural Equation Modeling for Knowledge Management Practices

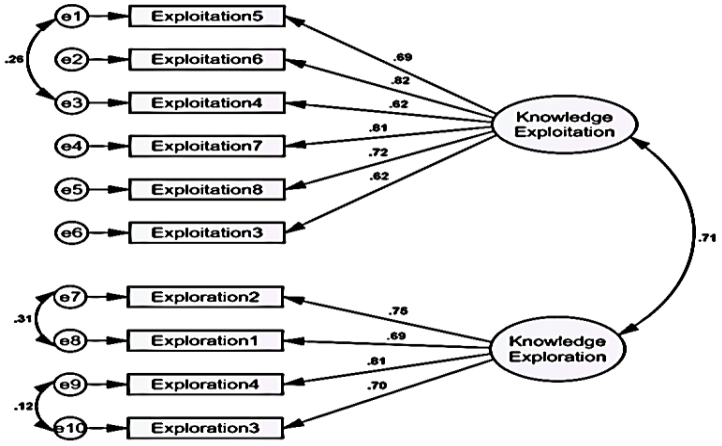


Figure 1 above shows the results of Structural Equation Modeling (SEM) for knowledge management practices. Based on the SEM results from AMOS, it was confirmed that both KM practices have achieved the model fit measurement indices. As indicated below in table 3, the entire model fit measures of KM practices achieved above the minimum threshold value.

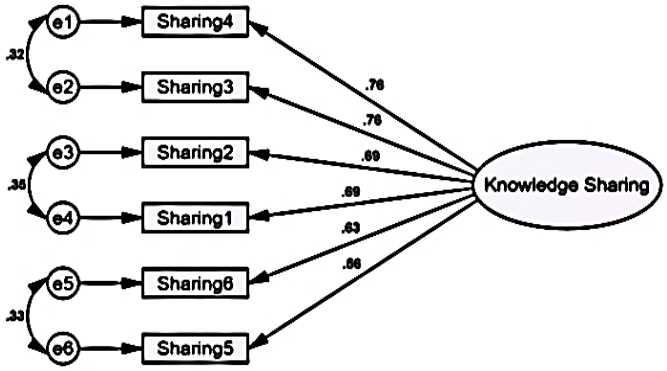
Table 3: Model Fit Measures for KM Practices

Measure	Estimate	Threshold	Interpretation
X2	116.074	--	--
DF	31	--	--
CMIN/DF	3.744	Between 1 and 3	Acceptable
CFI	0.976	>0.95	Excellent
SRMR	0.037	<0.08	Excellent
RMSEA	0.060	<0.06	Acceptable
PClose	0.069	>0.05	Excellent

4.3 Knowledge Sharing Practices

Knowledge sharing practices in this research are treated as independent construct. Therefore, all the statistical procedures are performed independently. Hence, an exploratory factor analysis followed by a confirmatory factor analysis was conducted in order to test the dimensionality of the items and establish validity and reliability of the construct. The KMO and Bartlett's tests showed value of 0.829 at significance level of 0.000. This depicted that the degree of common variance among the variables was quite high; therefore factor analysis could be conducted.

Figure 2: Measurement Model for Knowledge Sharing Practices



Knowledge sharing is the most important dimension of knowledge management. Human resource management and technological infrastructures are the most determinant factors for knowledge sharing and transfer. Particularly, reward systems and motivation are the most influential factors for effective knowledge sharing and transfer among employees.

4.4 Knowledge Conversion Practices /processes/

Figure 3: Measurement Model for Knowledge Conversion Practices

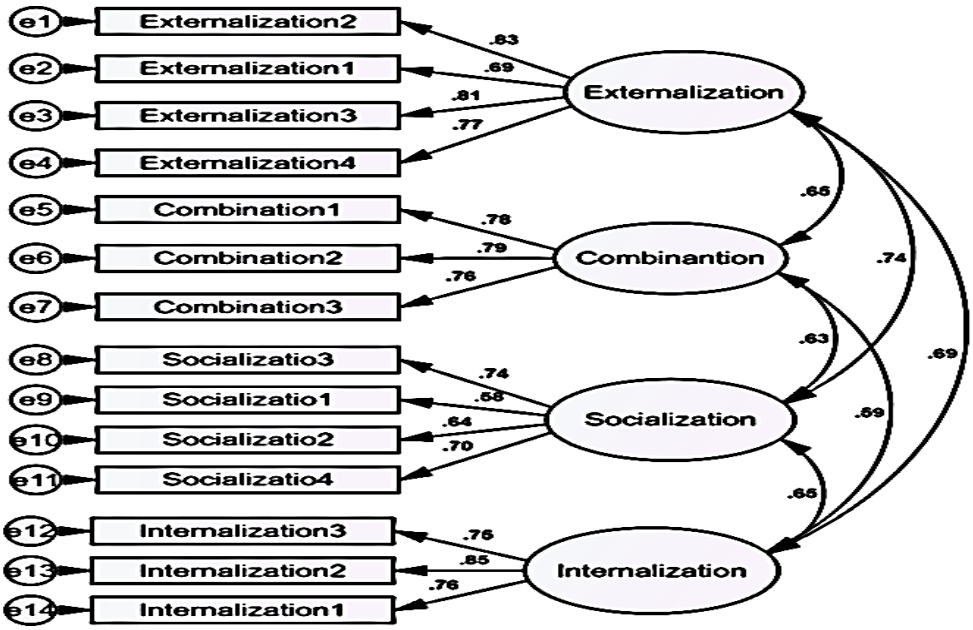
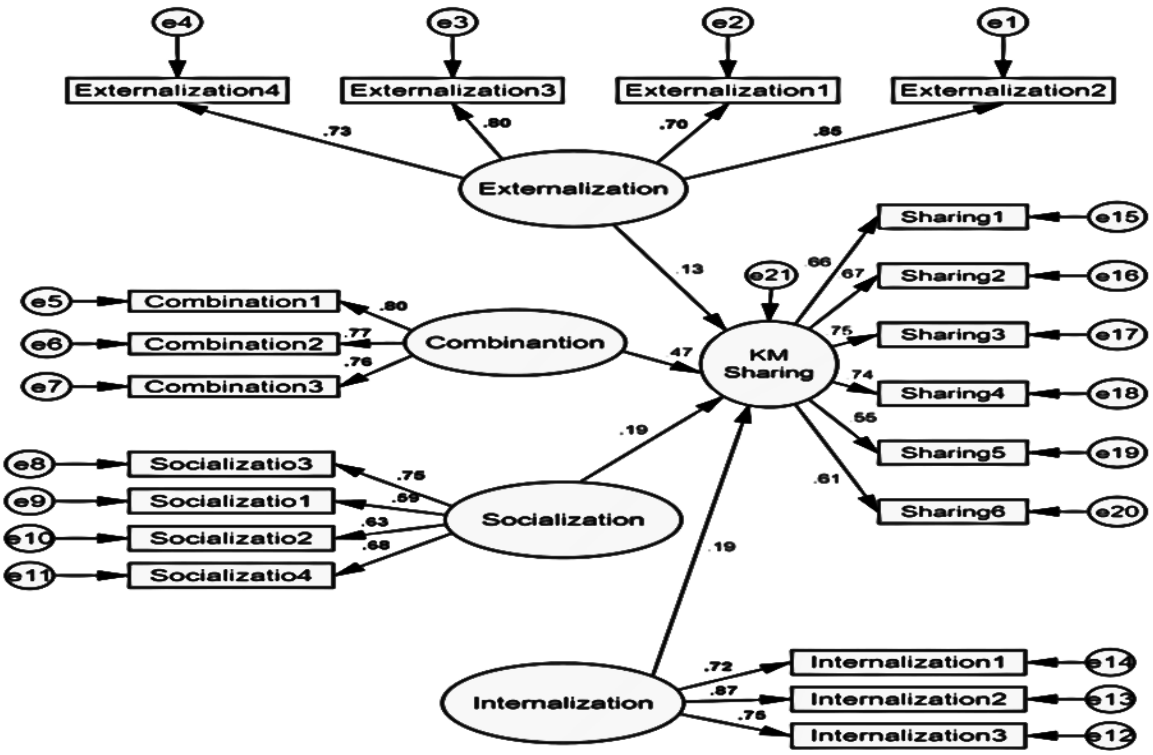


Table 4: Model Validity Measures for Knowledge Conversion Practices

	CR	AVE	MSV	MaxR(H)	1	2	3	4
Externalization	0.857	0.601	0.546	0.864	**0.775**			
Combination	0.820	0.602	0.428	0.820	0.655***	**0.776**		
Socialization	0.760	0.619	0.546	0.769	0.739***	0.632***	**0.787**	
Internalization	0.829	0.618	0.479	0.838	0.692***	0.589***	0.648***	**0.786**

Figure 4: Knowledge Sharing and Knowledge Conversion Practices

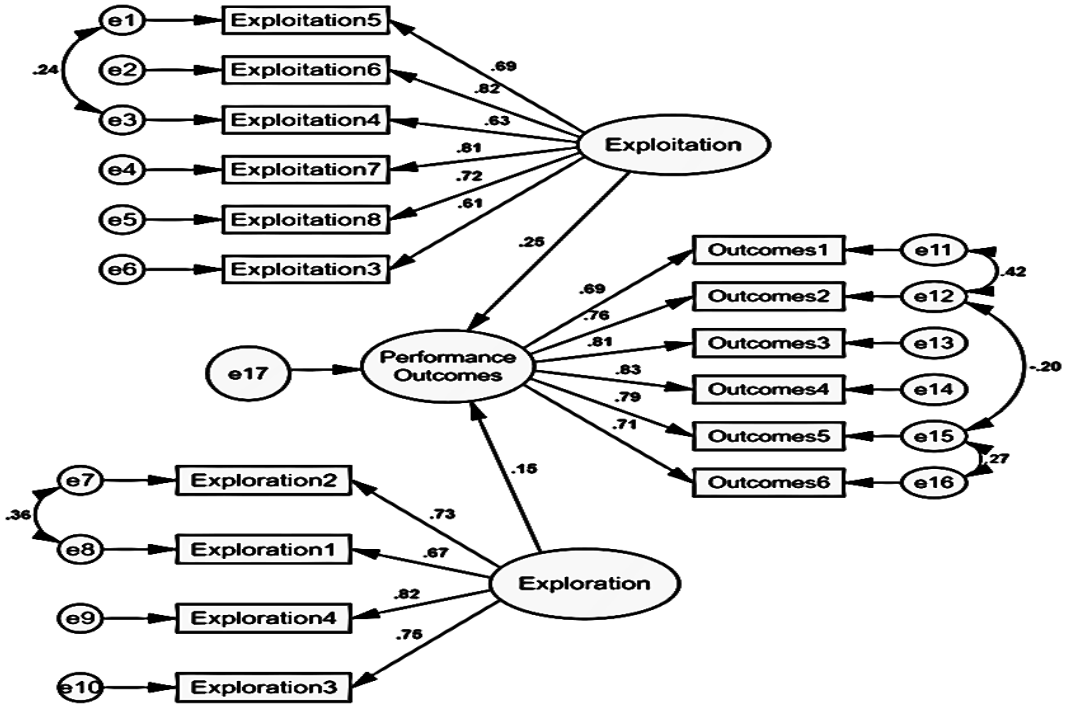


4.5 Knowledge Management and Performance

Past literature and empirical studies have revealed that, knowledge management significantly influences individual level and organizational level performance outcomes. Based on this theoretical premise, this study investigated the effect of knowledge management on organizational performance.

Before testing the theoretical proposition, an exploratory factor analysis was performed in order to validate the dimensionality of performance outcome scale items. Hence, a principal component analysis with varimax rotation was conducted and the preliminary results proved the factorability of the construct. The EFA result produced a one factor component structure which explained 67% of the variance in performance outcomes.

Figure 6: The Effect of KM Practices on Performance



The above result shows the effect of knowledge management practices on organizational performance outcomes. As it can be seen from the results of the structural model in figure 4.4 above, both knowledge exploitation and knowledge exploration significantly and positively affect organizational performance outcomes. Based on the results, knowledge exploitation practices significantly and positively influence organizational performance as compared to knowledge exploration. The result was further confirmed via model test measures.

Table 5: Model Fit Measures for KM and Performance

Measure	Estimate	Threshold	Interpretation
CMIN	276.807	--	--
DF	96	--	--
CMIN/DF	2.883	Between 1 and 3	Excellent
CFI	0.972	>0.95	Excellent
SRMR	0.041	<0.08	Excellent
RMSEA	0.050	<0.06	Excellent
PClose	0.493	>0.05	Excellent

5.1. Conclusion

Knowledge has been identified as the major source of competitiveness in the current globalized economy and continually changing environment which is characterized by technological innovations and increasing customer demand. Based on this premises, this study explored the current knowledge management practices in the Ethiopian public sector organizations. The research also investigated the effect of knowledge management on organizational performance and the major challenges that affect the effective use of knowledge in the public sector.

Accordingly, the following section of the paper highlight the study's key results concludes based on the research objectives and finally forward practical recommendations. The major objective of this study was to investigate knowledge management practices in the Ethiopian public sector organizations. With this major objective, the study also identified knowledge creation and conversion practices, the major contextual issues that affect the effective implementation of knowledge management, the relationship between knowledge management and organizational performance and the major challenges that hinder the implementation of knowledge management in the public sector.

Concerning the current knowledge management practices, the study demonstrated that both knowledge exploitation and exploration are implemented in the public sector to some extent. However, based on the study's findings much attention is given to knowledge exploitation, which using the current or available knowledge. Knowledge exploration, which is the acquisition, creation or development of new knowledge to develop future opportunities and trajectories, is a neglected aspect of knowledge management practices in the public sector.

In general, from this study it can be concluded that, there is KM practices implemented in the public sector, although much emphasis is given to knowledge exploitation. Moreover, knowledge creation and conversion processes are practiced to some extent in the public sector, but there should be more focus on converting tacit to explicit knowledge. It was also confirmed that, knowledge management practices positively and significantly affect organizational performance. In addition, there are a number of contextual factors that influence the effective implementation and utilization of knowledge (strategy, HRM, ICT and leadership). Finally, lack of sufficient ICT infrastructures, lack of reward & motivation systems, lack of KM strategy are the major factors that affect KM in the public

sectors

5.2. Recommendation

Considering the research's results and conclusions, the study forwarded the following practical recommendations that should be addressed by all public sector organizations and other relevant stakeholders.

There is a need to design and implement by Ethiopian public sector organizations knowledge management strategy and align knowledge management strategy with organizational strategy. Moreover, public sectors should choose appropriate strategies, methods and practices to manage different types of knowledge (explicit and tacit).

Although much emphasis is given to the exploitation of the existing knowledge, there is a need to balance between knowledge exploitation and exploration. In order to compete in the current competitive environment and meet increasing citizen demand, public sector organizations need to give due attention for exploration of new knowledge. Moreover, more emphasis should be given to knowledge externalization and combination

On -the -job training to convert tacit knowledge to explicit knowledge. Continuous capacity building trainings should be given to employees in order to facilitate the conversion of tacit knowledge to explicit. In this regard, organizations should also promote team-based approach to facilitate knowledge sharing among employees. In addition, there must be continuous leadership support in order to effectively manage knowledge available in each organization and to promote knowledge sharing.

A human resource management system that promotes knowledge sharing and transfer (reward & motivation systems) and retaining experienced and best performers should be given high priority by public sectors. On the other hand, ICT infrastructure (data base management) should be given priority. Particularly, this is important to share explicit knowledge, which is tangible and can be accessed through data base. In addition, public sectors should conduct periodic assessment of the knowledge stock available in the organization to identify the gap and take corrective action if necessary.

Better to design independent department or team that is responsible for knowledge management in each organization. Not only designing a separate department but also the department should be equipped with sufficient budget for research and development.

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