

## INFLUENCE OF KNOWLEDGE MANAGEMENT ON PERFORMANCE IN SMALL MANUFACTURING FIRMS

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### ABSTRACT

The purpose of this study is to investigate the association between knowledge management on the small and medium enterprise performance (SMEs). The study used a cross – sectional research design, where the data is collected only at a one point in time. A drop and pick method employed to collect data from 278 owner/ managers of manufacturing SMEs in Nigeria. Small and medium firms are very essential to the economic growth of Nigeria, they provides employment, contributes significantly towards the industrial development, they are considered to be the source of capital formation, an avenue for the production of intermediate goods and help in the development of craftsmanship. The outcome of literature review, provides a model aims to examine the relationship of the study constructs. Smart Partial least square (PLS) was employed, which reported a significant and positive relationship between the knowledge management and business performance of SMEs. The findings will benefits SME owner / managers, regulatory agencies, hence, future research directions were discussed.

Keywords: Knowledge management, performance, SMEs

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### 1. Introduction

Knowledge management strategy is seen an an important issues for small and medium firms and a policy tool for economic growth (Shehu & Mahmood, 2014). Knowledge management literature appeared to have produced a mixed results, as some finding support the significant association (Wang, et al., 2007; Brachos, Davood & Morteza, 2012; Nuruzy et al., 2013). However, the study of Fatahiyyan, et al., (2012), Emazade et al., (2012) produced a a mixed finding on KM to performance relationship. For SMEs to fully utilize the available opportunities in a its dynamic environment, there is need to of reconsidering their existing strategies. They need dynamic capabilities that enable them to find sense and use new opportunities and renew their existing knowledge bases. It is proposed that knowledge management capabilities, constitute a potential source of competitive advantage and key to success factors of SMEs. The goal of the present study, therefore, is to investigate the relationships between knowledge management, market orientation and business performance of SMEs in Nigeria. Specifically, this study aims to 1) examine significant relationship between knowledge management and SME performance.

### 2. Literature Review

#### 2.1 Knowledge management and performance

There is an inconclusive findings on the knowledge management to performance relationship. The study of Al-Hakim and Hassan (2011) investigated the role of middle managers in knowledge management implementation to improve organizational performance in the Iraqi mobile telecommunication sector. They established a significant role of middle managers in KM execution, hence a positive relationship between the construct. Annette and Trevor, (2011) examined Knowledge management and organizational performance. Their study uses survey data from one hundred and eighty nine senior and middle managers and structural equation modeling for data analysis; using a resource based view (RBV), the findings indicated that some knowledge resources such as structure of organization, application of knowledge are directly associated with organizational performance, while others such as technology, knowledge conversion did not have significant relationship to performance.

However, Sandhwalla and McDermott (2011), established a strong positive relationship between the knowledge management and performance. Kharabsheh, Magableh and Sawadha (2012) in their study of knowledge management practices and its impact on organizational performance in pharmaceutical firms in Jordan. They argue about the importance of knowledge management as a valuable instrument in improving performance. They also emphasis on effectiveness and ability of an organization to implement knowledge based activities will determine the development and sustainability of its competitive advantage. The study uses survey questionnaire and multiple regression method for data analysis. A sample of thirteen pharmaceutical firms was used. The finding of the study reported a significant and positive association between KM practices and organizational performance.

Moreover, Davood and Morteza (2012) investigated knowledge management capabilities and SMEs organizational performance. The sample is drawn from thirty small and medium enterprises with a survey questionnaire as a study instrument and regression methods for the data analysis. The result of the study indicated that all three factors of KM capabilities have a significant and positive association with SME performance. In the same vein, Emadzade, Mashayekhi, and Abdar (2012) empirically study knowledge management capabilities and organizational performance in Isfahan, Iran. Survey questionnaire and regression

method is used for data analysis. Two hundred and forty five small business owners were selected from eighty six small firms, adopting resource based view theory. The result shows a partial association between the two constructs.

Wang, Lee, Wu, Chang and Wei (2012) examined the influence of knowledge management and brand equity on the marketing performance in a Japanese automaker's branch in Taiwan. A quantitative survey using questionnaire was carried out with structural equation modeling as a method for data analysis. The findings of the study indicated strong linkage between KM and firm performance. Nurach, Thawesaengskulthai and Chandrachai (2012) investigated the factors that improve the quality of information technology and knowledge management system for SME(s) in Thailand, using structural equation modeling for data analysis and survey questionnaire as the study instrument. A sample of seven hundred and seventy SME(s) were selected, the findings of the study signifies a positive relationship.

According to Fattahiyan, Hoveida, Siadat and Tallabi (2012) in their study aimed to evaluate the impact of specific knowledge management resources (KM enablers and processes) on organizational performance, with a sample frame of two hundred and three faculty members of the University of Isfahan, Iran. The study is purely correlational and used two sets of questionnaire. The finding indicated a partial relationship between the constructs. Ubeda – Garcia (2012) established that knowledge management and training were significantly related with performance, in a study which employed a sample of sixty two Spanish firms' in the province of Alicante. Additionally, Nejatian, Nejati, Zarei and Soltani (2013) reported a significant association between knowledge management enablers and knowledge creation process. In the same vein, Haris – Aslam, Shahzad, Syed and Ramish (2013) examined knowledge sharing as determinant of academic performance, using multiple linear regressions. A sample of students from different Universities was used from Lahore, using convenience sampling with one hundred and forty eight participants. The finding indicated that knowledge sharing to academic performance was positively related. Abiola (2013) examined the impact of organizational learning, innovativeness and financial performance of small and medium enterprises in Nigeria, using survey questionnaire methods and correlation and regression for data analysis. The finding of the study indicated partial association between the constructs. Hence, the study appears to have produced mixed findings.

The study of Noruzy, Dalfard, Azhdari, Nazari Shirkouhi and Rezazadeh (2013) survey two hundred and eighty manufacturing firms from one hundred and six companies which have more than fifty employees. Structural equation modeling was used for data analysis; the finding indicated that knowledge management affects organizational performance indirectly through organizational innovation. Slavkovic and Babic (2013) argued on knowledge management and organizational performances of organizations with more than fifty employees were used as sample, with regression for data analysis. The finding indicated a significant and positive relationship between knowledge management and organizational performance. Streiger, Ait Hammou and Ghalib (2014) investigated the difference between organizational structure types and management levels in relation to perceive knowledge management practice within organizations. Data was collected from one hundred and fifty five respondents through web – based survey, using analysis of variance for data analysis. The finding appeared to be mixed; knowledge management practices of knowledge transfer were positively influenced by organizational structure type, there was a negative influence of management level on knowledge management practices of knowledge transfer. The following hypothesis developed: H1: Knowledge management has a significant association with the SME performance.

### **3. Methodology**

#### **3.1 Research Design**

The present study used a cross – sectional research design in which the data is collected only at a given point in time (Kumar, Abdul Talib & Ramayah, 2013; Zikmund, Babin, Car & Griffin, 2013; Sekaran & Bougie, 2013. However, the study employed a quantitative research method (Sekaran, Robert & Brain, 2001), in which most social science studies used to adopt. There are evidence of quantitative research method employed in the previous studies which includes: Kheng, June and Mahmood (2013), Shehu (2014), Al – Sardia and Ahmad (2014), Shukr Bakar and Mahmood (2014).

#### **3.2 Population and Sampling Technique**

The population of the study consist of 978 manufacturing SMEs fully operational in Kano – Nigeria (SMEDAN, 2012). A systematic random sampling method was used in selecting 278 respondents using Kriecje and Morgan (1970) table for sample size determination. Organizational unit of analysis with owner/managers of manufacturing SMEs as respondents. A drop- off and pick procedure is used for the data collection. The present study has a response rate of 62 percent, which is considered adequate (Al – Sardia & Ahmad, 2014; Sekaran et al., 2001, Shehu & Mahmood, 2014c).

#### **3.3 Measurements**

A five point likert scale is used in the measurement of variables, ranging from 1 (strongly disagree) to 5 (strongly agree) based on the previous works of Amin and Khan (2009), and Al – Sardia and Ahmad (2014) Shehu (2014). Business performance, knowledge management are the study constructs. In business performance, a total of six items adopted from Suliyanto and Rahah (2012). Knowledge management, has fourteen items adopted from Wang et al., (2011) respectively.

#### 4. Statistical Analysis and Results

##### 4.1 Content validity

The content validity of a construct is seen as the ability of measuring items to have a high loading within such a constructs. Hair, et al., (2010) and Chin (1998) asserted that Thus, factor loading could be used to assess the content validity. Table 1 below shows that all the variable are loaded on their respective constructs.

Table 1. Cross – loading of the items

	PER	KM
PER01	<b>0.795680</b>	0.784202
PER02	<b>0.878382</b>	0.992267
PER04	<b>0.657644</b>	0.453110
PER05	<b>0.748824</b>	0.486079
PER06	<b>0.755074</b>	0.509914
KM04	0.878382	<b>0.992267</b>
KM13	0.112390	<b>0.642750</b>

##### 4.2 Convergent validity

A convergent validity is defined as the extent to which a set of variables meets in measuring the concept on the construct (Bagozzi, Yi, & Philips 1991; & Hair *et al.*, 2010). The structural equation works asserted that items reliability, composite reliability and the average variance extracted are normally used in finding convergent validity. That is, the item of each construct are highly loaded and statistically significant with at least 0.6 factor loadings, showing satisfactory loading (Hair, et al., 2014), composite reliability is at least 0.7 and the average variance extracted (AVE) is at least 0.5 (Bagozzi, et al., 1991; Hair, et al., 2010). Table 2. shows that the average variance extracted and composite reliability values exceeded the suggested value of 0.5 and 0.7 respectively.

Table 2. The result of convergent validity analysis

Variable	Items	Loadings	Composite Reliability	AVE
Performance	PER01	0.795680	0.878	0.593
	PER02	0.878382		
	PER04	0.657644		
	PER05	0.748824		
	PER06	0.755074		
	Knowledge management	KM04		
KM13		0.642750		

##### 4.3 Discriminant validity

Discriminant validity refers to the degree to which a set of items of a given construct differ from other construct. In examining discriminant validity of the measurement model, the Fornell and Lacker (1981) criteria was used. Table 3 below, indicated that the diagonal element represent the square root of the average variance extracted of the latent constructs. The result of the correlation matrix indicated in the table below ensures that the discriminant validity is confirmed.

Table 3: Correlation matrix of the variables

	Constructs	PER	KM	KM
1	Performance	<b>0.770</b>		
2	Knowledge management	0.11		<b>0.835</b>

Figure 1: Hypothesized Model

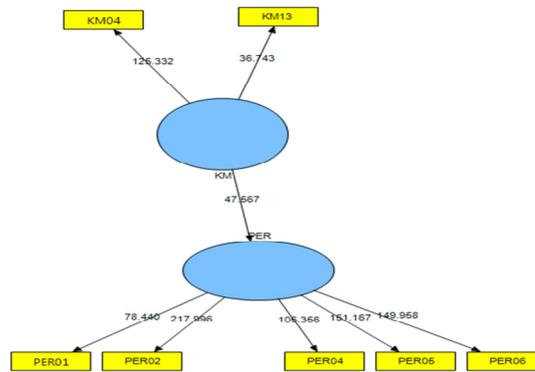


Table 4: Hypotheses Testing Results

	Path coefficient	Std. Error	t-value	P-value	Decision
<b>KM -&gt; PER</b>	0.493	0.010	47.567	0.0001	Supported

\*\*\*: P<0.001, \*\*: P<0.01, \*P<0.0

### 5. Discussion, Limitations and Future Research Direction

The findings of the present study is in support of the significant and positive relationship between knowledge management and performance, which is in line the the previous study of Al-Hakim and Hassan (2011), Fattahiyan, Hoveida, Siadat and Tallabi (2012), Haris – Aslam et al., (2013). The present study used a cross – sectional design, where the data was only collected at a point in time. Future studies may use a longitudinal survey design. Only the manufacturing SMEs are considered, future studies may used other SMEs such as service, education, wholesale and retail, and or construction. However, other variables such as alliance orientation, learning orientation, human resource management practice, technology orientation, entrepreneurial orientation, total quality management can be introduced to prdict performance with any suitable moderating and or mediating variable.

The finding from the present study will benefit SME owner/managers, regulator of SMEs such as the small and medium enterprise development agency of Nigeria (SMEDAN), it will help various arm of government in knowing the SME status in their respective areas and will serve as a frame of future research. From the theoretical view point, the study finding will add to the existing body of knowledge.

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