

## TQM AND KNOWLEDGE MANAGEMENT IMPACTS ON SME PERFORMANCE

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### ABSTRACT

*The purpose of this study is to examine the impact of Total quality management, Knowledge management and business performance of small and medium enterprises in Nigeria. SMEs are important to the economic growth of Nigeria, they are the major source of employment, innovation, poverty alleviation as well as the improvement of living standards. The study employed cross sectional research design, using structured questionnaire survey with a sample of 640 SMEs fully operational in Kano state, a total of 511 valid questionnaires were completed and returned representing 79.8 percent response rate. The finding from the study shows that the relationship between TQM, KM and business performance was found to be significant. The finding of this study will benefit owner/managers of SMEs, regulatory agencies, government at all levels and will also serve as a frame to future studies. Research limitations and direction for future studies discussed.*

**Keywords:** *Total Quality Management, Knowledge Management, Business Performance, SMEs.*

### INTRODUCTION

In today's dynamic competitive and rapidly changing economic environment, firm's attention is increasingly focused on how to manage their tangible and intangible assets and resources to enhance their performance and create competitive edge. Total quality management

(TQM) and knowledge management (KM) are considered as important organizational resources and capabilities used to increase competitiveness and higher performance. On the one hand, TQM is one of the important factor that can influence firm's performance, while on the other hand knowledge management has been recognized as an enabler that contribute to higher performance by creating, storing, transferring and applying knowledge. Thus it is appropriate to say that both TQM and KM have similar aims and objectives that is of gaining competitive advantage and improved performance (Waddell & Stewart, 2008).

According to resource-based view, strategic capabilities are a pool of internal resources that create competitive advantages (Barney, 1991). So, these unimitated and unique combination of resources within a firm have potential to enhance firm's performance and create sustained competitive advantages (Barney, 1995; Miller & Shamsie, 1996). In the view of the resource-based view of the firm (RBV), TQM and KM can be viewed as important strategic capabilities and organizational intangible resources. In this empirical study TQM and KM as key strategies have been associated together and it is expected that the synergy of these two different management approaches will improve the effectiveness and performance of the firm. However, each strategy is often studied as a separate discipline in the literature.

## LITERATURE REVIEW

### **Business performance**

Generally business performance refers to meeting the firm's objective or the success of the business. According to Alchian and Demsetz (1972) business performance of a firm can be defined as "the comparison of the value created by a firm with the value owners expected to receive from the firm". On the other hand, Flapper, Fortuin and Stoop (1996) performance is "the way organization carries its objectives into effect". According to (Daft, 2000) business performance is the firm's ability and capacity to achieve organizational objectives. Previous studies have widely investigated how to improve business performance and different predictors and factors of firm performance. In the literature different performance measures such as financial or non financial or subjective measures have been used to measure the business performance of a firm. In the present challenging dynamic business environment, the competition has been significantly increasing in quantity and quality of products and services. The main purpose of any firm is to provide

customers with products and services that meet and satisfy their needs and wants (Al-Marri *et al.*, 2007). In the field of organizational studies and strategic management literature, performance is considered as one of the most important constructs (Combs, Crook & Shook, 2005). Therefore, researchers have conducted considerable amount of research work on firm's performance seeking to understand the factors, processes, and other antecedents that can increase the firm's outcomes (Jing & Avery, 2008). According to Rogers and Wright (1998); March and Sutton (1997) business performance of a firm has widely been studied as a dependent variable in organizational research studies.

### **Total quality management (TQM)**

Total Quality Management (TQM) is a management strategy which is gaining an increasing attention and interest by many researchers (Ehigie & McAndrew, 2005). TQM is considered as a critical determinant of the success and survival and a source of competitive advantage of both manufacturing and service organizations (Douglas & Judge, 2001). According to Juran (1995) in the global challenging business environment the significance of TQM implementation can fulfil the needs and demand of customers by providing them with quality products and services. In a similar context, Williams, Wiele, Iwaardeen and Visser (2004) examined that TQM is one of the main factor in the creation of sustainable competitive advantage. Total quality management (TQM) is a holistic approach to continuously improving the quality of products and services through the involvement of all the stakeholders at all levels and functions of an organisation (Pfau, 1989). According to Yusuf *et al.*, (2007) TQM is business management philosophy for the whole organization to maximize customer satisfaction, gain better product quality, and to obtain higher productivity through the systematic removal of waste and the reduction of non-productive activities.

### **Knowledge management**

Knowledge is debatably as the asset most directly relate to overall organizational performance (Assudani, 2005; Drucker, 1993). An increasing body of literature also advocates that in highly dynamic environments, increased organizational knowledge can reduce risks and uncertainties (Liebeskind, 1996; Collins, Worthington, Reyes & Romero, 2010). Thus, firms capable of acquiring, storing, utilizing, and integrating newly discovered knowledge add to their existing knowledge stock (Ketchen, Snow & Street, 2004). Combining the firm's current knowledge resource-stock with newly acquired knowledge-stock can lead to the

creation of new knowledge within the firm (Ketchen et al., 2004) and the discovery or creation of entrepreneurial opportunities (Zahra, 2008). While knowledge is a vital resource for any firm, knowledge management is the level necessary in transforming resource into capability.

The key for effective knowledge application, comprise one of the primary avenues through which firms effectively utilize their knowledge-based resources. These capabilities can be particularly valuable to firms in many competitive contexts (Makino & Delios, 1996; Reed & DeFillippi, 1990). Firms that have used their knowledge management capability are likely to succeed and survive a myriad of competitive threats in the external environment (Kogut & Zander, 1993). In particular, effectively managing the firm's stocks of knowledge is associated with improved decision making within the firm (Ling, 2013). In highly competitive industries, firms need to focus on enhancing their knowledge management capability to ensure survival. These firms are more likely to integrate matching resources and achieve superior performance (Harrison et al., 2001; Ireland et al., 2002). Firms can meet this challenge by actively managing their knowledge inventories; to do so effectively require that they focus on building and diffusing knowledge. Thus, the development of knowledge management expertise involves multiple steps associated to the acquisition and utilization of knowledge within the firm. Organizations that actively utilize knowledge management tools can enhance their ability to create new knowledge within the firm and achieve superior firm's performance (Wiltbank *et al.*, 2006).

### **Total quality management and business performance**

In a competitive business environment, businesses need to emphasize more on quality by getting the information from customers about their requirements, timely delivery of products and to respond to the market changes (Martin-Pena & Diaz-Garrido, 2008). According to Deming (1986) quality is major determinant of success in competitive environment. Feng *et al.*, (2006) argued that in today's dynamic market place, firms must focus on improving quality and innovativeness. Total quality management is the main factor for gaining sustainable competitive advantage (Reed *et al.*, 2000). It was also suggested that there is a relationship between quality and productivity. As quality improves, there will be less wastage or rework and customer satisfaction will also be enhanced. Deming (1986) stated that TQM would generate improved products and services, reduced costs, more satisfied customers and employees and improved bottom line financial performance.

Small and medium sized enterprises (SMEs) play a dominant role in the current global economy and have been considered as the back bone in most developed and developing countries (Ghobadian & Galliar, 1996). Several researchers such as Fening *et al.*, (2008); Ahire and Golhar (1996); Bayati and Taghavi (2007) and Temtime and Solomon (2002) have emphasized that TQM practices can help small and medium sized enterprises, to be more efficient and more market-focused. Rahman (2001) explored that most of the literature focused on the implementation of TQM in large organizations and little attention has been paid to their implementation in SMEs. In a similar context, Demirbag *et al.*, (2006) also noted that there is dearth of literature investigating the relationship between TQM business performance of SMEs. Moreover, many studies regarding the implementation of TQM in SMEs were conducted in the context of developed countries such as US, UK and other European countries.

Temtime and Solomon (2002) in their study on 52 SMEs in Ethiopia identified eight critical TQM factors namely; managerial leadership and commitment; customer satisfaction; continuous improvement; employees empowerment and involvement; supplier partnership; quality culture and philosophy; and measurement and feedback. Their findings supported that SMEs should adopt TQM for growth and long term sustainability. Fening, Pesakovic and Amaria (2008) in their attempt to investigate the relationship between TQM and performance of SMEs in Ghana, concluded that there are positive significant relationships between the seven management practices used in the study namely, leadership; strategic planning; information and analysis; human resource management; customer and market focus; quality process management; and business results and the SMEs business performance. Similarly, the findings of empirical study conducted by Salaheldin (2009) on 139 Qatari SMEs revealed that there is a significant effect of TQM factors on operational and the organizational performance of SMEs.

Demirbag *et al.*, (2006) examined the relationship between TQM and performance on 163 SMEs in Turkey and their findings supported the existence of strong positive relationship between TQM critical factors and non-financial performance of SMEs. Moreover, Lee (2004) carried out an empirical research on 112 SMEs in China and identified many difficulties in TQM implementation such as the lack of resources, lack of knowledge, and ineffective quality training and poor employee involvement. However, there has been a consensus among SMEs' owners about the importance of TQM for higher business outcomes. In addition, the findings of his study showed a positive relationship between TQM

and performance of SMEs. While some studies empirically support that the successful implementation of TQM can improve performance of firms (Hendrick & Singhal, 2001; Douglas & Judge, 2001) Kaynak, 2003). On the contrary, Harari (1993) and Salegna and Fazel (1995) found no affect of TQM on performance. Similary, McCabe and Wilkinson (1998) and Yeung and Chan, 1998) found negative relationship amid TQM and the business performance. In the light of above discussion, it is hypothesized that,

**H1: TQM has a significant relationship with business performance of SMEs.**

### **Knowledge management and business performance**

Several studies been conducted on knowledge management and organizational performance, the findings form the previous studies appeared to be mixed. Lin and Lee (2005) assessed the influence of organizational learning factors and knowledge management process on e – business adoption. A survey of two hundred and two executives from Taiwan was used with structural equation modelling for data analysis. The findings indicated that organizational learning factors and KM process are related to the level of e – business adoption. However, knowledge sharing did nit significantly affects e – business adoption system level. Choi, Lee and Yoo (2010) examined information technology and transactive memory system on knowledge sharing, application and team performance. A sample of one hundred and thirty nine on – going teams of seven hundred and forty three individuals from two major firms in South Korea was employed. The finding indicated that IT support in organizations has a positive impact on the development of TMS in teams, and that both TMS and IT support have a positive influence on knowledge sharing and knowledge application. Further, knowledge sharing has a positive impact on on knowledge application, which has a direct impact on team performance. Additionally, knowledge sharing does not have impact on team performance, and team performance was fully mediated by knowledge application. Similarly, the finding of

Arising from these, Jain (2011) reported a perfect negative relationship between personal knowledge management and organizational KM and productivity. Wu and Hu (2012) supported the KM to performance relationships. Klaas, Semadeni, Klinchak and Ward (2012) examined the impact of high – performance work systems in SMEs based on leaders capacity to obtain additional human resource knowledge from an external experts. A sample of two hundred and ninety four small

business organizations was used. Leaders perceptions of HR effectiveness are positively related to the use of HPWSs, and that the relationship is moderated both by the communication patterns between small business leaders. The study of Yang (2013) investigated how different knowledge management processes of knowledge acquisition and dissemination affects manufacturer's performance. Knowledge based view and transaction cost economics were employed as the theoretical underpinnings. The findings from the study reported a significant and positive relationship between KM process and performance relationship. Additionally, Ling (2013) purposively sampled one thousand top Taiwanese companies, with one hundred and forty six questionnaire response. The outcome from the study shows that intellectual capital positively relate to performance, and knowledge management was found to moderate between intellectual capital and organizational performance. Aiken, Gu and Wang (2013) established that task technology fits mediates between knowledge sharing and team satisfaction, but no effect found on team performance. However, Nawaz, Hassan and Shaukat (2014) argued on the influence of three knowledge management practice of knowledge acquisition, dissemination and responsiveness to knowledge on innovation and firm performance. Data is collected from four hundred and seven manufacturing organizations listed in Karachi stock exchange. Correlation and regression analysis were used for data analysis. The result shows a positive and significant relationship between the study variables, innovation was found to partially mediates the association between knowledge management practices and firm performance. Based on these arguments; the following hypothesis formulated:

**H<sub>2</sub>: Knowledge management has a significant relationship with business performance of SMEs.**

## METHODOLOGY

### Research Design

This study employed cross – sectional research design as the data was generated in a single point at a given time (Kumar, Abdul Talib & Ramayah, 2013; Zikmund, Babin, Car & Griffin, 2013; Sekaran & Bougie, 2003). The study also adopts quantitative research approach (Sekaran, Robert & Brain, 2001), which was mostly used in social sciences. Other previous studies used quantitative research method, Shehu and Mahmood (2014a), Shehu and Mahmood (2014b); Kheng, June and Mahmood (2013) and Shukr Bakr and Mahmood (2014)

## Population and Sampling Technique

The population of this study covers the entire 1829 SMEs (SMEDAN, 2012) fully operational in Kano – Nigeria. Systematic sampling technique was adopted to select 320 respondents using Krejcie and Morgan (1970) which was later doubled to 640 as recommended by Hair, Wolfinger and Ortinal (2008); Sekaran *et al.*, (2001).

The unit of analysis for this study is at organizational level which cover the entire SME owner/managers. A self – administered questionnaire also called drop- off and pick procedure served as the data collection method. The present study has a response rate of 79.8 percent, which is considered adequate (Shehu & Mahmood, 2014c).

## Measurement of Constructs

In this study, all variables were measured using the 5- point scale, ranging from 1 (strongly disagree) to 5 (strongly agree) based on the previous works of Noor and Muhammad (2005), Awang, Isma'il and Mansoor (2014). There are three variable in this study, as regard to business performance, a total of six items adopted from Suliyanto and Rahab (2012). Total quality management measures were adopted from Idar and Mahmood with nine items, Knowledge management, fourteen items adopted from Wang, Hult, Ketechen and Ahmad (2009).

## STATISTICAL ANALYSIS AND RESULT

### Content validity

Content validity simply refers to an intense in which all the items designed to measure a given construct should have a high loading in the construct were designed to measure. Thus, factor loading could be used to assess the content validity as recommended by Hair, et al., (2010) and Chin (1998). Table 1 indicated that all the variable significantly loaded on their respective constructs and possess a good value of 0.5 and above.

**Table 1** Cross – loading of the items

	BP	TQM	KM
BP01	0.740671	0.411315	0.113813
BP02	0.725697	0.365271	0.103346

(Continued)



	BP	TQM	KM
BP05	0.716426	0.356853	0.064999
BP06	0.699282	0.448878	0.044330
TQM01	0.344120	0.695461	0.046025
TQM12	0.434699	0.754461	-0.009246
TQM02	0.426398	0.774398	0.059973
TQM24	0.366208	0.623105	-0.002154
KM03	0.088521	-0.000068	0.812104
KM05	0.085753	0.047025	0.592225
KM07	0.059646	0.023315	0.736443

### The convergent validity

Bagozzi, Yi and Philips (1991) and Hair *et al.*, (2010), sees convergent validity as the extent to which a set of variables meets in measuring the concept on the construct. The convergent validity can be established, based on SEM literature, by using items reliability, composite reliability and the average variance extracted. That is, the item of each construct are highly loaded and statistically significant in measuring their respective constructs (Bagozzi, et al., 1991; Hair, et al., 2010). Table 2, shows that the average variance extracted values are more than 0.5 and the composite reliability values of the constructs exceeded the recommended value of 0.7, it can be confirmed that the measurement model has an adequate level of convergent validity.

**Table 2** Convergent validity analysis

Constructs	Items	Loading	Cronbach's Alpha	Composite Reliability	AVE
Business performance	BP01	0.740	0.692	0.812	0.519
	BP02	0.725			
	BP05	0.716			
	BP06	0.699			
TQM	Tqm01	0.695	0.677	0.805	0.510
	Tqm12	0.754			
	Tqm02	0.774			
	Tqm24	0.623			
Knowledge management	KM03	0.812	0.626	0.759	0.517
	KM05	0.592			
	KM07	0.736			

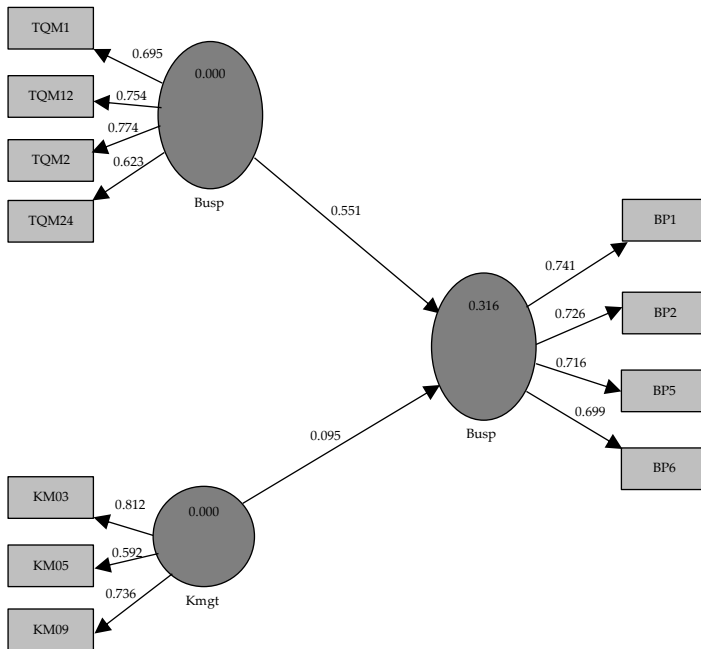
### The discriminant validity

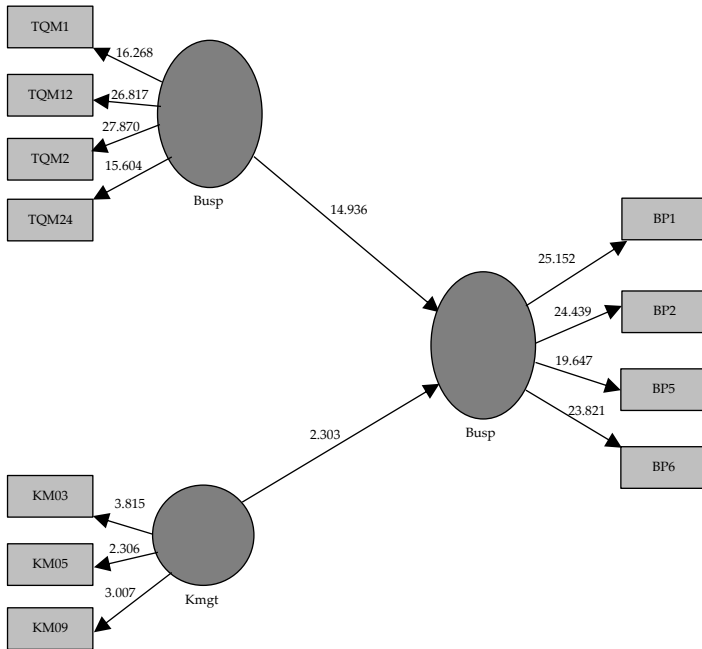
Discriminant validity is considered to be the degree to which a set of items differ from one construct to other construct. In examining discriminant validity of the measurement model, the Fornell and Lacker (1981) criteria was used. Table 3. Indicate the correlation matrix in which the diagonal element 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

Variable	BP	TQM	KM
1 Business performance	0.72		
2 Total quality management	0.553	0.714	
3 Knowledge management	0.325	0.252	0.719

### The measurement and hypothesized model





**Table 5** Hypotheses testing

	Path Coefficient	Std. Error	T Value	P Value	Decision
TQM <- Busp	0.550641	0.036867	14.935	0.000	Supported
Kmgmt -> Busp	0.094624	0.041081	2.303	0.022	Supported

## DISCUSSION AND RESEARCH IMPLICATIONS

This study examined the impact of total quality management and knowledge management on small and medium enterprises performance in Nigeria. The study found support for the direct relation between TQM and business performance. This result was consistent with previous study by Lee (2003); Joiner (2007); Salahdin (2009); Malik *et al.*, (2010); Volmohammadi (2011) and Yunis, Jung and Chen (2013). However, the relationship between knowledge management and business performance was also supported. This finding is in line with the previous study by Lin (2005); Wu and Hu (2012); Choi, Lee and Yoo (2010); Yang (2013) and

Ling (2013). The significance of TQM and knowledge management (KM) and their contribution to firm's performance is increasingly gaining recognition worldwide.

Summers (2006) explored that TQM tends to improve the quality of products, better use of resources, decrease in cost, fewer number of mistakes, reduced delays in production and delivery. This in turn enables a firm to acquire more market share and boost the performance which guarantees its continuous stay in business and provision of more jobs. Likewise, KM practices are important drivers of business performance as it plays a key role not only influencing and directing the conduct of routine business operations, but also provides a foundation for long-term business success (Sinkovics & Roath, 2004). The findings of this research provides an in depth understanding for the academia and researchers regarding implementation of TQM and KM in SMEs for higher performance. The results of this study will give a guide map for the policy makers and practitioners to devise those policies which can help and support the current and future entrepreneurs. The theoretical implication can be that the study extends the existing body of knowledge by examining TQM and Knowledge management relationship to business performance of SMEs. It has also tested and validated the instrument that were developed by previous researchers and validated in US and European context.

## LIMITATION AND FUTURE RESEARCH

This study is limited only to those SMEs operating in Kano, north western part of Nigeria. A cross – sectional research design was employed, which collect data only ones. Future studies may consider other countries. The study recommends the use of moderating and mediating variables between the TQM, KM and business performance. A longitudinal study is suggested, that may allow data collection activity over a long period of time. The use of other statistical packages could be used in examining this model in the future.

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