Knowledge Management Process Capabilities and Competitive Advantage in the Nigerian Food, Beverage and Tobacco Industry

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Abstract
This study examines the effect of knowledge management process capabilities on the competitive advantage of the Food, Beverage and Tobacco (FOBTOB) firms in Nigeria. A survey research design was employed, with a structured and self-reporting questionnaire as a tool for data collection. Stratified sampling technique was used in the determination of three hundred and sixty (360) sample respondents, from a population of 1718 management staff of the FOBTOB firms under study. 234 copies of the questionnaire were returned and found usable, hence, formed the actual sample size for this study. Data obtained were analyzed using tables, frequencies and percentages for descriptive, while t-test, simple and multiple regressions and Pearson Product moment correlation analyses were used as inferential statistics for testing of hypotheses. The findings of this study show that knowledge management process capabilities positively and significantly affect competitive advantage with R^2

= .299; F=24.397; p<0.05 while more effect was seen from the protection and application processes. It is recommended that firms should give more attention to the process of acquiring and applying knowledge gained in order to achieve the desired innovation outcome.

Keywords: Knowledge management; Process capabilities; Innovation; Market share; Competitive advantage.

Introduction

Organization's success and survival to a large extent depend on its ability to adapt to the ever dynamic and multi-faceted business environment. The focal point of businesses, therefore, becomes the attainment of a position of competitive advantage that may enhance firm performance relative to that of competitors'. Against this backdrop, the intensity for the search of strategic and efficient techniques that may enable organizations to meet their general as well as competitive objectives becomes paramount. Hence, several tools, techniques and interventions like Six Sigma, Total Quality Management (TQM), Decision Support System (DSS), Management by Objectives (MBO), Lean processes, Management Information System (MIS), Business Process Re-engineering, Risk Management, Strategic Management are employed by organizations to remain relevant and effective (Alabi and Alabi, 2012).

Studies on strategy posit that some firms consistently outperform others, leading to what is referred to as competitive advantage (CA). Hence, businesses locally and globally strive not only to attain a competitive advantage, but also to sustain and persevere in the long run. Sustaining competitive advantage depends on a range of factors which include a firm's relative capability development (Johannessen and Olsen, 2003); or blend of traits that allows it to do better than its competitors like access to natural resources or access to highly trained and skilled human resources (Wang, Lin and Chu, 2011).

These traditional sources of CA have been eroded by the globalization of business activity according to Jacome, Lisboa and Yasin (2002). Proponents of the resource-based view (RBV) opine that resources with tangible and intangible attributes possessed by a firm which are valuable, uncommon, poorly imitable and non-substitutable

form the core competency for attaining and sustaining CA. In their view, "knowledge" is one of the strategic resources that can sustain CA; and this triggered off another school of thought the "Knowledge-Based View" (KBV). The KBV considers "knowledge" as the most strategic of the firm's resources and identifies knowledge and the managing of knowledge-based resources as a vital tool for sustaining CA and superior performance.

The foregoing sets the belief that the foundation for organizational competitiveness is shifting to an emphasis on knowledge, and as Wong (2005) reflects, organizations are becoming more knowledge-intensive and hiring more "*minds*" rather than "*hands*"; and emphasis is on the role of knowledge management (KM) in creating SCA for organizations (Ho, 2008; Zheng, Yang and McLean, 2010). There are several definitions of KM as there are many authors. What is common however is that KM has to do with the ability of an organization to create, share and use the collective knowledge of its products, processes and people. Hence, it involves the process of acquiring, organizing and communicating both, tacit and explicit knowledge of employees in order to improve productivity (Sodiya, Onashoga, Dansu and Adeleye, 2006).

Methodology and Purpose of the study

This study set to establish the effect of KM process capabilities measured through knowledge acquisition, conversion, application and protection on competitive advantage measured using innovation and market share. The study adopts a cross-sectional survey research design. The area of study is Lagos state. Lagos was chosen due to its cosmopolitan nature being the nation's former federal capital and a hub for commercial activity. About 50% of the Food, Beverage and Tobacco (FOBTOB) companies, the sector under study are domiciled within Lagos. The target population for the study comprises the three levels of management staff of the firms in the FOBTOB industry. The sector dominated the activity of the manufacturing industry in 2014, having the largest output of all, and contributed the highest percentage to the nation's GDP (NBS, 2014). The sector still has very great influence in the Nigerian nation economy till date. The stratified sampling technique was adopted in this study.

From the FOBTOB population in Lagos, 31.57% (six organizations) were selected. This is a good representation going by De

Vaus (1996) which suggests that 10% of the population under study should be the minimum sample size. From this six organizations, three hundred and sixty sample respondents were drawn and administered a self-reporting questionnaire using a seven-point Likert scale of 1= strongly disagree to 7 = strongly agree. Constructs item measures were obtained from already validated instruments with Cronbach alpha greater than or equal to 0.7. However, a reliability and validity test to check consistency were done through a pilot study and the Cronbach alpha was well over 0.7. Data were analyzed using tables, frequencies, percentages and mean item scores for the descriptive while one sample t-test, Pearson product moment correlation and regressions analyses were used as inferential statistics for hypotheses testing.

Theoretical Framework

The resource based view (RBV) as an approach to achieving competitive advantage emerged in the 1980s and 1990s following the major work of Wernerfelt (1984) and the likes of Barney (1991). The proponents of this view opine that organizations should search inward the company rather than the competitive environment to identify the sources of competitive advantage. This is against the background that activities to cash-in-on by a firm can be environmental in nature in terms of paying attention to external industry structure as proposed by Porter or directing attention to the internal resources, capabilities and investments, which provide the instruments and tools to shape the external environment as stated by the resource-based view (RBV). Knowledge is one of the internal assets or resources identified by the RBV supporters as necessary for sustaining competitive advantage. Whereas the knowledge-based view (KBV) which is an extension of the RBV aver that "knowledge" is the core competency required by an organization to be competitive. The rapidity at which companies develop or acquire new knowledge is such that having special knowledge is no longer a criterion for sustainable competitive advantage; rather, a firm requires knowledge that is hard for competitors to replicate in addition to the ability to rapidly develop new knowledge to achieve sustained competitive advantage (Lubit, 2001). The two ways by which companies can create sustained competitive advantage via knowledge is to spread internal knowledge that other companies will find very difficult to imitate - "tacit knowledge"; while the second thing is for companies to endeavor to create superior knowledge management

capabilities which can foster ongoing innovation (Lubit, 2001) and create increased market share.

Ologbo and Nor (2015) aver that sustainable CA is a product of innovation while innovation itself could be derived from the four processes of knowledge management (Acquisition, Conversion, Application and Protection). Knowledge management efforts typically focus on organizational objectives such as improved performance, the sharing of lessons learned, competitive advantage, integration and continuous improvement of the organization (Banes, 2011). The theory predicts the relationship among the variables as can be seen in Fig. no.1.

Fig. no. 1. Relationship between KM Process Capabilities and Competitive Advantage
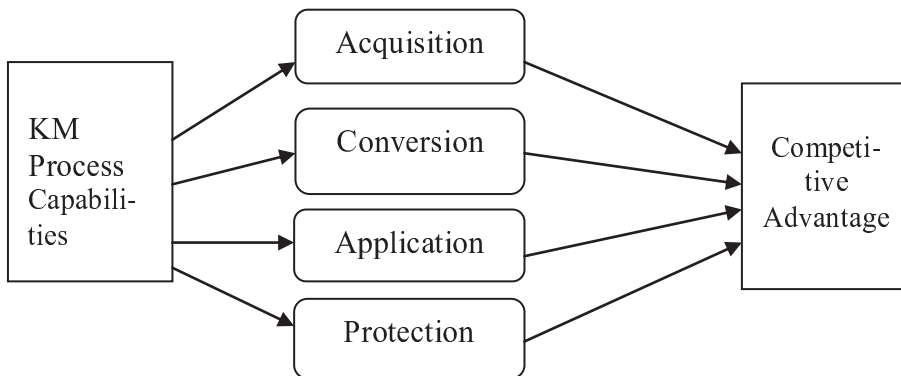
Source: Authors (2017)

Literature Review

The need to outperform one another has always being the concern of business organizations hence the need for discerning what constitutes competitive advantage. Competitive advantage (CA) is an advantage that a firm has over its competitors, which allows it to innovate more or generate greater sales or margins and/or retains more customers than its competitors (Alaneme, Kuye and Oghojafor, 2016). The root of CA stems from "Competitive strategy which is about being different and deliberately choosing to perform activities better than rivals to deliver a unique mix of value" (Porter in Thompson and Strickland, 2001).

Constant improvement in the field of KM led to the identification of a number of significant factors like organizational culture, leadership, information technology, processes and activities, and human resources management referred to as enablers, or capabilities, or the critical success factors (CSFs) of KM (Zheng *et al.,* 2010). Capabilities or CSFs are defined as the managerial and organizational factors which require serious attention in order for KM implementation to be successful. Several capabilities (firms' resources) which serve as preconditions for effective KM have been proposed by scholars, but the Gold, Malhotra and Segars (2001) model appears to be the most widely referred to in the literature. This model presents knowledge management capabilities as multidimensional concepts that incorporate an "infrastructure" perspective, which focuses on "knowledge management infrastructure capabilities", and a "process" perspective, which focuses on a set of activities termed "knowledge management process capabilities". This study is interested in the process perspective.

The "knowledge process capabilities" consists of knowledge acquisition, knowledge conversion, knowledge application and knowledge protection. These capabilities have been adopted by several researchers in their studies. Studies show that managing knowledge for CA requires the use of distinct capabilities and competencies embedded in the organization in order to create, share, use and protect knowledge so as to improve and sustain competitiveness. CA was measured looking at innovativeness, which includes product and process innovativeness, and market position.

Since organizations are heterogeneous in their resources, strategic capabilities or competencies as well as arrangement, it implies that each organization will need to identify these capabilities and be able to apply them effectively. However, there is a need to determine which of the knowledge processes affects innovation and market share the most, as well as what their combined effect is on competitive advantage. Hence, we hypothesize that:

Ho$_i$ KM process capabilities (acquisition, conversion, application and protection) do not significantly influence innovation.

Hoii   KM process capabilities (acquisition, conversion, application and protection) do not significantly influence market share.

Ho$_{iii}$ KM process capabilities have no significant effect on competitive advantage.

Results

Table no.1 is a summary of Pearson's correlation matrix on all the variables and show that all the knowledge management process capabilities were moderately but positively correlated with innovation, market share and competitive advantage; except for the conversion process which had a weak (.287) but positive relationship with innovation.

Table no. 1. Summary of Pearson's Correlation Matrix

Knowledge Management Process Capabilities	Innovation	Market Share	Competitive Advantage
Acquisition process	.398[**]	.383[**]	.473**
Conversion Process	**.287**[**]	.402[**]	.423**
Application Process	.333[**]	.478[**]	.498**
Protection Process	.398[**]	.394[**]	.481**
Knowledge Infrastructure Capabilities	.333**	.407**	.453**
Knowledge Process Capabilities	.357**	.414**	.471**

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed). N = 234
Source: Field Survey, 2017

Ho$_i$: Effect of KM Process capabilities (acquisition, conversion, application, protection) on innovation

Table no. 2 represents a multiple regression analysis conducted to test Ho$_i$ which aim at ascertaining the joint effect of the knowledge management acquisition, conversion, application and protection processes on innovation.

The result shows a positive and statistically significant joint effect of the process variables on innovation with an $F_{(4, 229)} = 15.519$, $p < .05$) and an R^2 of .213. This means that 21.3% of the variation in innovation is jointly caused by these variables. The individual coefficients illustrating the input of each individual variable indicate that the acquisition process (0.457, $p < 0.05$) and protection process (0.299, $p < 0.05$) had more influence in predicting innovation. The conversion and application process, however, had negative coefficients and insignificant contribution to the model. The implication of this result is that what is most important in innovation in an organization is acquiring the knowledge first and learning how to protect the knowledge from theft and misuse. Again, innovation is likely

to take place more with less transfer of knowledge to people who may not have the use for it so as to prevent divulging it to competitors. In addition, a negative application of knowledge reduces innovation. Hence, innovation predicted:

$$INN = 2\cdot898 + \cdot457(AC) + (-\cdot165)(CV) + (-\cdot123)(AP) + \cdot299(PT) + \varepsilon i \cdots (1)$$

This implies that INN may increase by .457 of knowledge acquisition process and by .299 of knowledge protection process. On the other hand, innovation will be inversely affected by -.165 of knowledge conversion process and -.123 of knowledge application process. In précis, the combination of the four variables shows they are significant predictors of innovation (INN). However, the conversion and application process influenced by other factors have inverse and insignificant contribution to the model.

Table no. 2. KM Process Capabilities on Innovation

Model 1	B	Beta (β)	t-value	P-value	R	R^2	F-value	F-sig.
Constant	2.898		10.010	.000	.462[a]	.213	15.519	.000[a]
Acquisition process	.363	.457	3.508	.001				
Conversion Process	-.123	-.165	-1.567	.118				
Application Process	-.089	-.123	-.958	.339				
Protection Process	.242	.299	3.878	.000				

a. Predictors: Protection Process, Acquisition process, Conversion Process, Application Process
b. Dependent Variable: Innovation. Significant at 0.05 level.

Source: Field survey, 2017

Ho[ii]: Effect of KM Process capabilities (acquisition, conversion, application, protection) on market share.

Table no. 3 presents a multiple linear regression calculated to predict market share (MS) based on acquisition, conversion, application and protection process. A significant regression equation at degree of freedom (4,229) gives an F = 19.534, p < .05 with an R^2 of .254. Therefore, predicted market share is:

$$MS = 2\cdot997 + (-\cdot226)(AC) + \cdot088(CV) + \cdot504(AP) + \cdot164(PT) + \varepsilon i \ldots (2)$$

The implication of this is that knowledge acquisition process with a negative coefficient of .226 may decrease MS by that margin, increase by .088 of knowledge conversion process, .504 of knowledge application process and .164 of knowledge protection process. From the individual coefficients, it is obvious that more contribution to the model came from the knowledge application process with 0.504, $p < 0.05$. This explains the fact that the ability to gain market share lies in applying the acquired knowledge to fill identified gaps which can be used to satisfy, draw and establish customers' loyalty. Also very important to the model is the knowledge protection process. This is understandable because an unprotected knowledge becomes everybody's knowledge and will no longer serve any competitive advantage; and in the case of gaining market share, if everyone (all competing organizations) is offering the same service, for instance, there is nothing distinguishing about it anymore, and no organization can lay claim to being the market leader for that particular knowledge. In addition, the knowledge acquisition process has an inverse relationship with market share. This can be explained given the fact that acquiring less of unimportant or not useful knowledge will increase gaining market share or vice versa.

In essence, a combination of the four variables significantly predict market share (MS), whereas the acquisition and conversion processes interacting with other factors lost their significance in predicting MS as they had p values > .05.

Table no. 3. KM Process capabilities on market share

Model 1	B	Beta (β)	t-value	P-value	R	R^2	F-value	F-sig.
Constant	2.997		9.263	.000	.504[a]	.254	19.534	.000[a]
Acquisition process	-.206	-.226	-1.782	.076				
Conversion Process	.075	.088	.861	.390				
Application Process	.419	.504	4.049	.000				
Protection Process	.152	.164	2.180	.030				

 a. Predictors: (Constant), Protection Process, Acquisition process, Conversion Process, Application Process
b. Dependent Variable: Market share. Significant at 0.05 level.

Source: Field survey, 2017

Hoiii: Effect of KM Process capabilities (acquisition, conversion, application, protection) on competitive advantage

Table no. 4 shows a multiple regression analysis of KM process capabilities of acquisition, conversion, application and protection on competitive advantage. The result demonstrates a statistically significant effect with an R of 0.547 and R^2 of .299. The model is fitted under degree of freedom (4,229) with an f-ratio (F= 24.397, $p < 0.05$).

A look at the individual coefficients show that the application and protection processes make positive and significant contribution to achieving competitive advantage, while acquisition has a positive but insignificant ($p > .05$) input into the model, and the conversion process had an inverse (-0.036) and insignificant ($p > .05$) contribution to the model. This implies that the less transfer or conversion of knowledge to people, the more the competitive advantage a firm will have. This simply indicates that most employees especially those who may not have immediate use of particular knowledge within the organization, if conferred the privilege of such knowledge, may likely abuse it, perhaps through divulging such information to other competitors for some kickbacks. Once the other competitors grab it, it becomes common and less valuable, and therefore not a capability anymore. Basing our model from the general regression model of $Yi = b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4$, we then have: CA = b_1AC + b_2CV + b_3Ap + b_4PT. Thus the model is specified as:

$$CA = \cdot 112(AC) + (- \cdot 036(CV) + \cdot 258(AP) + \cdot 275(PT) + \varepsilon i \cdots (3)$$

Against this background, it is obvious that a combination of the predictors: acquisition, conversion, application and protection do influence competitive advantage. We, therefore, reject the null hypotheses that acquisition, conversion, application, and protection do not significantly affect CA.

Table no. 4. KM Process Capabilities on Competitive Advantage

Model 1	B	Beta (β)	t-value	P-value	R	R^2	F-value	F-sig.
Constant	2.948		12.191	.000	.547[a]	.299	24.397	.000[a]
Acquisition process	.078	.112	.908	.365				
Conversion Process	-.024	-.036	-.363	.717				
Application Process	.165	.258	2.135	.034				
Protection Process	.197	.275	3.781	.000				

a. Predictors: (Constant), Protection Process, Acquisition process, Conversion Process, Application Process
b. Dependent Variable: Competitive Advantage. Significant at 0.05 level.

Source: Field survey, 2017

Discussions

The results show that KM process capabilities measured by the four variables - acquisition, conversion, application and protection combined, significantly predict competitive advantage (CA). This is in line with the studies of Chiu and Chen (2016) which found a significant positive effect of knowledge process capabilities on organizational effectiveness. It also supports the findings of Emadzade *et al.* (2012), Nguyen (2010), Seleim and Khalil (2007), Gold *et al.* (2001) and Grant (1996).

The individual standardized beta coefficients, however, show that the conversion process was negatively and insignificantly related with CA since the p-value > 0.05; while the acquisition process was positively insignificant. This inverse relationship of conversion on CA is an indication that increasing the conversion process may decrease competitive advantage. This may be looked at from the point of view that when too many people supposedly are aware of particular information it becomes an open-secret which may no longer be an advantage to the organization since some are bound to sell out this knowledge. Further, the inability of the acquisition process to significantly predict competitive advantage with the interaction from other variables shows that it is not necessarily the ability to generate or acquire knowledge that matters in CA, but a combination of other factors which will make the knowledge generated to be meaningful.

Linking the insignificant effect of the conversion process to CA in Nigeria can be explained by the fact that most times transfer of knowledge through formal training in organizations are made for the "preferred employees" and not necessarily the "deserving employees". This implies that knowledge is being transferred to the wrong people that may be unable to use it. This negates the effect of the conversion process as an advantage to the organization. Similarly, the positive but insignificant effect of the acquisition process when related to Nigerian organizations whether public or private indicates that when it comes to searching for useful information or knowledge to solve problems, Nigerians are good at it, but after which the information is shelved and hardly used. Having more knowledge than the competitor should be an advantage, but the implication on CA will be on how it is applied.

On the other hand, the application and protection processes appeared the most crucial processes. This affirmed the studies of Cohen and Levinthal (1990), Seleim and Khalil (2007) which found that through knowledge utilization, acquired knowledge transforms from potential capability to dynamic capability which yields organizational performance. That is, a direct impact on CA will be felt when acquired knowledge that has been shared to the right people is put into use or applied. The view of Barney (1991), Smith (2006) and Gold *et al.* (2001) on the importance of protection of knowledge from inappropriate use or theft through using a variety of policies, rules, procedures, incentives and technology, was confirmed. This indicates a direct effect on CA and the need for an organization to secure its knowledge resource from misuse and theft especially in an environment like Nigeria where people look out to steal others idea and patent at the slightest opportunity.

Conclusions

The findings of this study indicates that the processes for effective KM which can yield and sustain CA in terms of knowledge acquisition, conversion of acquired knowledge, application or use of knowledge acquired, and protection of organizational knowledge from theft and incorrect use, are available in the Nigerian studied organizations. The results provide a support for the knowledge-based view of the firm which posits that the major source of competitive advantage rests in the ability to apply integrated knowledge resources

and not only in the ability to generate new knowledge or convert new knowledge as such (Grant, 1996).

The outcome of the study further implies that while the four main processes combine to determine the KM process capabilities, more emphasis and highlight should be placed on the application process in order to fully exploit and utilize the different types of knowledge sourced for achieving organizational objectives. In addition, there is a need to protect the valuable, rare and imitable resources acquired, converted and applied from being stolen in order to maintain CA (Barney, 1995).

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