

# TECHNOLOGICAL INNOVATION CAPABILITY: EXIGENCY FOR DRIVING MARKETING PERFORMANCE DURING PANDEMICS

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## **Abstract**

*This paper investigated the relationship between technological innovation capability and marketing performance of manufacturing firms in Nigeria. The research was designed as a cross-sectional survey and utilized the structured questionnaire in generating data from 63 management staff from 15 food and beverage firms in Nigeria. The Spearman's rank order correlation coefficient was utilized as the test tool in the assessment of the relationship between technological innovation capability and measures of market performance (sales growth, profitability and market share). Evidence from the test show that technological innovation capability contributes significantly to all three stated measures of market performance; thus, it was concluded that enablement of organizational features that reflect technological innovation capability, advance and further enhance outcomes of market performance; while at the same time driving the organizations effectiveness in marketing within highly dynamic and uncertain environment.*

**Keywords:** Profitability, marketing performance, market share, sales growth, technological innovation capability

## **Introduction**

The role food and beverages manufacturers' play in the Nigerian economy include the expansion of economic opportunities for individuals and organisations. This is due to the ever increasing importance of food and beverages to human health and life. Organisations achieve this role through physical distribution (logistics) of goods and services while ensuring that products are available for businesses and consumers. The flow of food and beverages products from points of origin to their destination is embedded in the concept of logistics and involves the timely delivery of finished products to customers (Adegebe, 2016; Kotler & Armstrong, 2013; Al-Rfou, 2012). The recent COVID-19 pandemic has however impacted negatively on the distribution of manufactured products and as such marketing performance of most organizations in Nigeria.

In an interview in 2020, Goodluck Obi, the partner and head of KPMG International Cooperative noted that the lockdown impacted all sectors including the Food and Beverages which is one of the providers of essential products allowed to continue operations during the crisis. Among others the restrictions impacted the route-to market (RTM) distribution system adopted by most of the companies. Given the restrictions, it was challenging for companies with essential

products who are still open to move their products through the wholesalers in the market, some of whom are closed down. Also impacted is the purchasing power of consumers in the short and mid-term due to the increased demand arising from panic buying of essential items at the expense of nonessentials.

This is as Dheeraj and Vishal (2012) observed earlier, that organizations are not immune to changes and threats that crop up within their environment – noting that the environment of the organization advances both threats and opportunities for the organization. Such threats as posed by the COVID-19 pandemic have in recent months led to poor functionality of most organizations, as evidenced in the lockdown and social control which have invariably affected the flow and distribution of goods and services. Literature (Hassan, 2013; Dlugosz, 2010) showed that the trend in the food and beverages industry is that of high levels of product diversification, distribution and increase in product base (Proshare, 2017). The proliferations of products enable firms to exploit the opportunity of serving the needs of different segments of the market and in so doing gain the required share of the market, the threats notwithstanding.

The ability of a firm to perform well and remain competitive in the Nigerian food and beverages sub-sector of the manufacturing industry is largely dependent on the adoption of viable strategies and technological systems that enables survival in the local markets as well as in the global market (Azigwe, Maryir, Asunka & Manamzor, 2016; Onyango & Ajiboye, 2012). Thus, technological innovation capability is increasingly gaining recognition as a fundamental to survival and wellbeing of organizations; and as a key source of competitiveness – given its dynamic capacity to advance the organizations interest despite the changes within the context of the organization (Milichovsky, 2017; Kotler & Armstrong, 2013; Lamberti & Noci, 2010).

Despite the noted increase in attention (Zakaria, Zailani, & Fernando, 2010; Anne, Nicholas, Gicuru & Bula, 2016) with regards to technological innovation capability, it is also

important to note that very few studies have been conducted in Nigeria and of the few conducted not many of them investigated the nexus between technological innovation capability and marketing performance of firms in the food and beverages sector; even though adoption of technological innovations is important for enterprises to sustain their effectiveness and competitive advantage during times of change such as that occasioned by the COVID-19 pandemic (Ratten, 2020; Batra, 2020). Thus, this study seeks to contribute to literature by examining the interplay between technological innovation capability and marketing performance of food and beverages firms in Nigeria.

### **Theoretical Framework**

The major theoretical foundation, upon which this study of the relationship between technological innovation capability and marketing performance is hinged, is the resource-based view (RBV). The resource-based view of the firm is a theory that has been explored in academic literature (Delke, 2015; Anderse'n, 2010) as a means of explaining the competitive advantage an organisation has over other firms and, in turn, the superior performance of that firm among others. The main thrust of the RBV is the relationship between customer value, competitive advantage and superior performance (Delke, 2015). The firm can provide value to customers in many ways, through superior production systems, lower cost structures and emphasize customer service through flexible and dynamic technological systems (Delke, 2015; Barry, Clulow & Gerstman, 2005). The RBV of the firm posits that key resources such as; intangible assets (relationships and systems) and capabilities (skills and knowledge) are characteristics which enable the firm implement strategies to meet with the needs of customers, thereby enhancing the firm's ability to secure a sustained competitive advantage.

### **Technological Innovation Capability**

Technological innovation capability describes an organizations ability to adapt and modify its systems and processes in line with technological changes or emerging features in the context or market of the organization

(Ramey, 2012). This could be in the form of new products or new processes that serve the effectiveness and competitiveness of the organization, Technological innovation capability is therefore, a form of dynamic capability in the sense that they drive change and development of the organization. Ringim, Razalli and Hasnan (2012) argued that technological innovation capability is anchored on proactive capacities and by the installation and development of structures and platforms that are flexible enough to adjust to unpredicted or unplanned changes or events within the context or environment of the organization.

### **Marketing Performance**

Marketing performance is a construct with several indicators. Scholars have however proposed core metrics that are overly important to firms. In this study, we focus on market share, sales growth and profitability as adequate measures or indicators of marketing performance (Baumgartner, Hatami & Ark, 2015). Marketing performance details the organizations ability to effectively service the need and satisfaction gaps of its clients. Ahmed, Mehmood, Irum and Sultana (2012) argued that relationships are important to organizations and provide the basis for their relevance and value. This agrees with the position that the more integrated an organization is within its context, the more effective it will be at understanding and addressing the concerns and needs of the market (Adefulu, 2015). From this stance, one could argue that marketing performance is contextual; anchoring primarily on the relative needs and overarching values that shape and define the context of the organization.

### **Technological Innovation Capability and Sales Growth**

In a study conducted by Baumgartner *et al* (2012), it was discovered that the best way to beat market or survive competition today is to put sales at the heart the firms' agenda. This assertion is based on a study of more than 100 large companies in Korea whose revenue averaged \$31 billion, \$47 billion market capitalisation and 86,000 employees. It was discovered that these firms had consistently outperformed their peers in terms of growth and profitability over a five-year period. The under

listed strategies were used by the firms and as such have been proven to drive and sustain sales growth: (i) get to growth opportunities before your competitors do (ii) use and optimize multiple channels to serve customers of different sizes (iii) use sales operations and techniques as engines of growth, (iv) balance near-term growth with building long-term capabilities (v) get buy-in to implement difficult changes to operations; all of which prescribe technological innovation capabilities that aid and drive sales growth. However, as earlier noted, there is a scarcity of studies that have addressed the relationship between the variables within the context of Nigeria; hence the following hypothesis is formulated:

*Ho<sub>1</sub>: Technological innovation capability does not significantly affect sales growth.*

### **Technological Innovation Capability and Firm's Profitability**

The firm's profitability results from the value it offers. The development of new processes and products advance economic value through the identification of latent needs and existing satisfaction gaps within the market. Beukes and Van Wyk (2016) argued that the capacity of organizations to change and realign their structures and features in ways that accommodate the attributes and characteristics of their market is useful, especially as a basis for sustained functionality. This reiterates the assertions that technological innovation capability is imperative to developing a more robust stance for the organization, hinged on sustained market performance and by that, the consistent flow of profit for the organization (Waters, 2010; Xu, Zhang & Ma, 2013; Kotler & Armstrong, 2013). Given the noted scarcity of content that has addressed the relationship between the variables, the following hypothesis is formulated:

*Ho<sub>2</sub>: Technological innovation capability does not significantly affect firm's profitability.*

### **Technological Innovation Capability and Market Share**

Technological innovation capability links organizations to their markets. It provides a bridge through which organizations reach and

effectively address the concerns of their customers or clients. Vijanyan, Hirawaty, Zainal and Amin (2012) argued that organizations one of the major priorities for organizations within highly turbulent and dynamic contexts is to flow in line with the behaviour and preferences of customers (Prempeh, 2015; Ramey, 2012). This builds rapport and strengthens the ties between the parties involved and at the end enhances the connection between the organization and its market. Going by this position, there is an apparent gap in studies on the relationship between technological innovation capability and market share, particularly as expressed within the context of Nigeria. Thus, the following hypothesis is formulated:

*H<sub>03</sub>: Technological innovation capability does not significantly affect market share.*

**Methodology**

This study adopted a quantitative approach; and collected via cross-sectional survey. Thus, data on the proxies of the dependent and independent variables were measured on an interval scale; and was collected from respondents at a single point in time, using a well-structured questionnaire (Ahiazu, 2010). The data collected were subjected to descriptive and inferential analysis to unveil the direction and magnitude of relationships between the focal variables. The population of the study comprised quoted (listed) food and beverages manufacturing firms in Nigeria. There are fifteen (15) companies listed in the facts book of the Nigerian Stock Exchange (NSE) 2014-2016 edition.

The study took a census. Thus, a total of ninety (90) top management personnel and heads of different units (marketing, production, procurement/purchasing, customer-service,

accounts, and quality assurance managers) were surveyed on a sample frame of six (6) from each of the fifteen (15). The choice of these categories of persons is premised on the fact that they are the decision making body in the firms, hence, are armed with information about their firms, relevant to this research. Since all the elements in the population constitute the sample size; the question of sampling technique did not arise. However, respondents are drawn purposively. The use of purposive sampling is premised on the fact that it allows the researcher to choose to examine research elements that exhibit similar characteristics (e.g., specific experience, knowledge, skills, exposure to an event, etc.) (Ahiazu, 2010).

The study utilized primary and secondary data. Primary data were collected through the use of questionnaire, while secondary data was sourced from financial reports and publications of the target manufacturing firms. The questionnaire is a common instrument for collecting data beyond the physical reach of the observer (Ahiazu, 2010). In designing the questionnaire, a five-point Likert scale which indicated the extent of respondents’ feeling or opinion on the impact of technological innovation capability and marketing performance, where a scale of one implies strong disagreement with a statement while a scale of five implies a strong agreement as the case may be (Patton, 2002). The Cronbach’s Alpha method was used to establish the reliability of the instrument with a thresh hold of 0.7 set by Nunally (1978). The Cronbach’s alpha method computes the internal consistency of items of an instrument. Furthermore, the study instrument was subjected to a pilot study where ten (10) respondents who were not included in the study were selected using simple random sampling method from the firms.

**Table 1: Cronbach alpha coefficients**

S/N	Variables	Items	Alpha, $\alpha$
1	Sales growth	5	0.75
2	Profitability	4	0.84
3	Market share	7	0.77
8	Technological Innovation Capability	6	0.96

Source: Data Output, 2021

The result of the Cronbach Alpha (a) test as shown in Table 1 established the reliability or the internal consistency of the instruments. The calculation was made easier using Statistical Package for social sciences (SPSS) version 21.0. The above result justified the use of the instruments for the study and agrees with the thoughts of Ahiauzu (2010) that a reliability coefficient is calculated in terms of the average inter-correlations among the items measuring the concept.

**Questionnaire Administration and Retrieval**

This section presents the distribution and retrieval of questionnaire. A total of 90 (100%) copies of questionnaire were distributed in line

with the stated population for the study. However 63 (70%) copies were successfully retrieved from the field. Considerations were also taken with regards to such issues as missing values and double single-item check; however, after instrument cleaning and error assessments, it was observed that all instruments were suitable and adequate to be included in the analysis. Hence the study utilized 63 cases in its analysis.

**Descriptive Analysis**

The result on the descriptive analysis of the variables (sales growth, firm profitability, market share and technological innovation capability) is illustrated on the Table 2.

**Table 2: Descriptive analysis of the distribution for the variables**

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Sales Growth	63	3.3056	.94019	-1.019	.302	.183	.595
Firm Profitability	63	3.2976	.89787	-1.323	.302	.580	.595
Market Share	63	3.0635	.91467	-.851	.302	-.437	.595
Technology	63	3.5317	1.08276	-.898	.302	-.114	.595
Valid N (listwise)	63						

Source: Data Output, 2021

The summary distribution for the variables shows mean distributions that affirm to the manifestations of the constructs of interest. The distributions show that all four constructs are evident – although moderate, yet still, substantial in the behaviour and disposition of the organizations. Results thus identify the firms as expressing moderate levels (where  $x > 3.0$ ) of technological innovation capability while also reflecting adequate levels of

marketing performance (sales growth, firm’s profitability and market share).

**Test of Hypotheses**

The test of hypotheses assessed the correlation between technological innovation capability and the measures of marketing performance (sales growth, firm’s profitability and market share) using the Spearman’s rank order correlation coefficient. The result for the test is illustrated on Table 3.

**Table 3: Test for Hypotheses**

		Technology	Sales Growth	Profitability	Market Share	
Spearman's rho	Technology	Correlation Coefficient	1.000	.935**	.560**	.440**
		Sig. (2-tailed)	.	.000	.000	.000
Sales Growth		N	63	63	63	63
		Correlation Coefficient	.935**	1.000	.485**	.525**
		Sig. (2-tailed)	.000	.	.000	.000

	N	63	63	63	63
Firm	Correlation Coefficient	.560**	.485**	1.000	.224
	Profitability	Sig. (2-tailed)	.000	.000	.
Market Share	N	63	63	63	63
	Correlation Coefficient	.440**	.525**	.224	1.000
	Sig. (2-tailed)	.000	.000	.077	.
	N	63	63	63	63

Source: Data Output, 2021

Evidence generated from the analysis and test of hypotheses reveal a significant relationship between technological innovation capability and all three measures of marketing performance. The results show that technological innovation capability contributes significantly to sales growth (rho = 0.935; P = 0.000), profitability (rho = 0.560; P = 0.000) and market share (rho = 0.440; P = 0.000). Thus the null hypotheses formulated earlier are rejected on the basis of the outcome of the test. In view of this outcome, the study restates its position on the relationship between the variables as follows:

- i. Technological innovation capability contributes positively towards sales growth
- ii. Technological innovation capability contributes positively towards firm's profitability
- iii. Technological innovation capability contributes positively towards market share

**Discussion of Findings**

The result of the tests conducted demonstrates that technological innovation capability significantly impacts and enhances outcomes of marketing performance; while its relationship with all three measures appears to be significant, its impact is noted to be more significant on sales growth. This demonstrates the imperatives of technological change related actions such as new product development, system flexibility and process fluidity in driving sales outcome of firms and in establishing the organizations position and value within its market (Ringim, Razalli & Hassan, 2012; Ramirez, Morales & Jesus, 2011). The results further emphasize the need for organizations to focus on their technologies during times of

change as a capability that can be channelled towards driving the change goals of the organization; and which could also be structured to effectively engage the market concerns of the organization while at the same time addressing its environmental change incidences.

The findings of this study thus present technological innovation capability as a fundamental factor and feature of the organization – with its evidence further reinforcing the premise and tenets of the resource-based theory. The findings are as such, re-echo the findings of previous studies (Etale, Bingilar & Ifurueze, 2016; Onaolapo & Ajiboye, 2012; Ratten, 2020) which support the position of technology as a priority and one which given the current change dispensation of most markets and contexts as a result of the pandemics or other related crisis events; serves to enable resilience in the functionality and operations of organizations. Not only are these crucial to the image and reputation of the organization within its market, it also enhances the trustworthiness of the organization in meeting the needs and concerns of its market despite crisis events or situations and thus has the potential for driving marketing performance through sales growth, firm profitability and market share.

**Conclusion and Recommendation**

In view of the evidence generated on the relationship between technological innovation capability and marketing performance, it is the position of this paper that the development of infrastructure and frameworks which serve the purpose of providing flexibility and fluidity to the organizations behaviour, especially with

regards to its technological systems – creating and enabling innovative applications in products, systems and process; would contribute substantially towards improved marketing outcomes for the organization – thus serving its interests in terms of sales growth, profitability and market share.

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