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HIGH-TECH MARKETING AND SUSTAINABLE COMPETITIVE ADVANTAGE IN THE NIGERIAN SMARTPHONE INDUSTRY

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Abstract: Singing skills of each singer helps in choosing accurate songs for them. These skills are determined by using vocal competence. Matching a song to singer’s vocal competence is the major and difficult task in song recommendation. There are other song recommendation systems, which works on recommending songs of listener’s interest. These traditional approaches did not consider the singer’s ability of singing which leads to poor singing performance by singer. This paper gives the solution using song recommendation framework. This framework uses the term singer profile, which constitutes singer’s vocal competence in terms of features of voice like pitch, intensity and also the voice quality of the singer. The paper then gives technique to acquire singer profile and song profiles are stored in database. Then learning to- rank scheme is used to rank the recommended song profile for each singer profile.

Keywords: : High-Tech Marketing, High Tech Product, Technology Outsourcing, R&D Activity, Sustainable Competitive Advantage

I INTRODUCTION

High technology markets exploit and create change rather than consolidate and defend the existing situations. Therefore, the interdependence between marketing and technology is significant (Rosen, Schroeder and Purinton, 1998). Low technology firms may basically amend their marketing strategies to indicate relatively stable technological conditions (Naveen, Sanjeev and Prosanto, 2006). High technology firms, however, must recognize that both technological and marketing conditions are constantly dynamic. High technology markets are attributed by their dynamism and complexity which necessitate a changing target market over their life-cycle. The complexity of the product also influence market acceptance in various ways in high technology markets. As high technology products are more complicated, they need higher customer education and more product information. High technology products most times results from innovations. Innovations can be seen as falling into a continuum from evolutionary to revolutionary. Naveen, Sanjeev and Prosanto, (2006) stated that for the

enthusiasts, high technology is the epitome of national competitiveness which will usher in unprecedented opportunities for economic growth and competitive advantage. For the skeptics, high technology is nothing more than the myriad electronic devices and gadgets which move on and off the store shelf with remarkable speed. The primary product characteristics behind these connotations are rapid modification and extreme complexity because of which high technology is constantly related with speedy product development and hyper-competition.

In high-tech markets, the constant enhancement and highly overlapping product generations make worse product obsolescence, so products of prior generations depreciate because of the launch of a new generation or model, even if they are still perfectly functional. Customers' decisions about whether or when to adopt a new generation of technology largely depend on their expectations about the pace and magnitude of product enhancement (Mohr, 2001). A lot of high-tech products are complicated, technically complex, and/or difficult to understand.

The purchasers of such products share the same mindset, speak the same language, possess specialized interests, and needs the same technical information. In spite of their product knowledge, they frequently have rational buying motives and high levels of participation, and their purchase decisions involve their assessment of product performance in terms of recognized objective standards (Alden, Steenkamp, Jan-Benedict, and Batra, 1999). Alternatively, marketing communications about new products could be done in a bipolar style, such that the messages convey informational cues while evoking an emotional response. Technology assets provide the infrastructural capabilities for production plants to outsource their production effectively to the dynamics in consumer requirements, attain higher production flexibility, expand capacity or focus on core competencies, but majority of companies outsource activities to improve product quality by leveraging the expertise of their suppliers.

However technology and innovation outsourcing only act as a decisional option, but rather as a piece of managerial plans of whole business and particularly firms can develop a technology strategy, where operational dimensions require such an approach. Chew and Rashad, (2015) stated that outsourced marketing can strategically advance the company's growth with the help of subject matter experts and professionals from the outsource companies. On the contrary, services or products from the outsource firm that do not constantly meet a desired level of quality, will be a problem for their client as it will directly affect the reputation, brand and overall value of the client's company. Smartphones are still one of the most popular products in the globe as well as in Nigeria. Multiple brand players and new product launches are creating a sustained interest and demand. Nigerian Smartphone industry has recorded 5.7 million units in 2016 with a 17% decline compared to 2015 figures, according to GfK Point of Sales data. The market continues in a descending trend for the first 2 months of 2017. Global Smartphone demand totaled 1.41 billion units for 2016 and GfK forecasts a 3% growth for 2017, resulting in 1.48 billion units.

A glance at the competitive business environment around indicated that today's business environment and factors influencing it differ and more complex than what was in the past. Advancement in information technology, technology, production techniques, and customer power are among the attributes of today's business environment, all of which are associated with the dynamics and complexity of the markets. According to Besanko, David, and Mark, (2000) a firm has the competitive advantage if it gains a higher

economic profit than the average rate of profit in the same market. New technologies can facilitate marketing innovation, e.g., the ability to sell products electronically or digital supermarket displays aids flexible pricing, but they are rarely distinctive or proprietary to the innovative firm. Competitors may use identical technologies from similar or identical suppliers. Firms in high-tech industries, marketing and technology innovation act as stronger substitutes than for firms in low-tech industries. Previous studies were conducted in a foreign context and has not addressed the effect high tech marketing may have on sustainable competitive advantage. Therefore, the study is aimed at bridging this gap in study.

Objectives of the study

The general objective of the study is to examine the effect of High-Tech Marketing on sustainable competitive advantage in the Nigerian Smartphone industry. The specific objectives are to:

- i. Ascertain the effect of high tech product on sustainable competitive advantage
- ii. Determine the influence of technology outsourcing on sustainable competitive advantage
- iii. Examine the extent to which R&D activity affect sustainable competitive advantage

Statement of the Problem

Consumers may purchase high-technology products not only to gain useful benefits but also to enjoy the knowledge of using them. At other times, customers reject innovations in spite of their prospective usefulness because of fear of being overwhelmed by the technology. The issues of marketing of high technology products are complex and demanding due to the peculiar attributes of high technology products. More specifically, requirements of the market are unsure in a high tech environment vs. a low tech and consumers are uncertain of the technology's potential uses and gain.

Further, no one actually knows how large the potential market is or how quickly the new technology will spread. With compatibility standards for the technology not well-known, unpredictable modification in needs tend to follow. Technological uncertainty is not knowing if a technology can meet a set of needs in a more dependable, effective way than alternative approaches. This is determined by the lack of information about the reliability of the technology, the product's functional performance, and unexpected side-effects. The development of a novel technology will outdate an existing technology and may itself will gradually become obsolete by a forthcoming technology.

Further, the new technology does not have proven delivery patterns that are in commonly expected to be

undependable as they are not tested. There is a general fallacy that innovation is well received by customers for the high performance improvements it brings and for facilitating personal or professional life. One must understand that some customers general have the habit of resisting change. This connotes that market takeoff for high tech products is difficult to estimate- even when estimated, forecasts tend to overestimate demand since resistance to innovation adoption is typically underestimated. The focus on marketing in a high-tech context in fact presumes that operating in high-tech industries and markets imposes specific marketing issues and problems that cannot easily be dealt with by applying "traditional" marketing approaches and thinking.

II HIGH-TECH MARKETING

McKenna, (1991) a leading marketing specialist who works with numerous high-tech companies, claims that "Marketing is everyone's job, marketing is everything, and everything is marketing". The label "high tech" or "high technology" refers to technology that stretches from stoves to nuclear power plants and from razor blades to satellites. McKenna, (1991) the renowned high technology marketing guru, defines high technology industries as characterized by large numbers of entrepreneurial competitors, customer confusion, complex products, and rapid change.

Marketing has become a vital element for the high technology firms that are faced with confused customers and great deal of uncertainty on the realization of the technology. Therefore, in high-tech firms there is a relevant increase in interaction between marketing and R&D. The rapid transformation in the market and the need for gaining a market share when facing entrepreneurial and aggressive competitors demands from high tech firms to speed up the product development process. High tech firms exploit and create innovations rather than consolidate and defend existing situations the interdependence between marketing and technology is of crucial importance.

High-tech marketing is the integrated communications-based process through which customers and firms realize existing and newly-recognized needs and wants that may be satisfied by high-tech products (MarCom, 2010). One of the greatest problems that high-tech producers encounter when marketing their products is the ability to communicate in abstractions while maintaining knowledge of the information in order to avoid overwhelming prospects (MarCom, 2010). In other words, keeping their message simple, but convincing enough to create a true interest in the desired customer. High-tech markets are seen as rapid-dynamic environments that lead to shorter life-cycles and the

need for fast decisions. This speed is determined by increasing competition and customer growing expectations, which increases the level of risk for both the consumer and producer. High-tech marketing is an integrated marketing communication by which firms and their stakeholders identify new and existing needs and wants that can be satisfied by producing and buying high tech products. Specifically, Vassilios (n.d) stated that when communicating

new high tech products emphasis should be given in the following:

- i) **Reducing complexity:** consumers do get confused about the complexity that a new technology brings and prefer to stick to known and tried solutions. Simplicity and focus on customer gains and not technology attributes should serve as the lasting guideline,
- ii) **Demonstrate compatibility:** it is essential that the new technology works well with existing processes and systems. Increased necessities for changes and in operations will bring strong adoption confrontation that can prove to be detrimental.
- iii) **Prove relative advantage:** customers do ask: "why should I adopt this product?". In order for the customer to make the decision, the dominance of the new product needs to be visibly expressed.
- iv) **Show technology observation:** adoption is supported by customers and decision makers observing the technology in action. This might be via the use of a prototype or white papers and case studies that refer to real life applications.
- v) **Offer Trials:** wherever possible offer product trials so final consumers can experience the technology gains themselves in their own space and time.

III HIGH-TECH PRODUCT

High technology products have sure prominent attributes that distinguish them from low technology consumer products. The marketers of the products of the latter type may alter their marketing strategies to replicate comparatively unchanging technological situations. High technology firms, though must know that both technological and market circumstances are fast changing. This changing environment necessitates a higher consideration of both marketing and technology-related perspectives.

The term high technology products is normally used for any product, ranging from sports shoes to RFID (Radio Frequency Identification), whose functioning is beyond the reach of common knowledge (Naveen, Sanjeev & Prosanto, 2006). The definition of high technology products has been proposed in different contexts such as projecting employment

growth to formulating policy proposals to enhance national competitiveness (Diwan & Chakraborty, 1991). Several technological and high-tech products are associated with network externalities, i.e. user's utility of such a product are affected by the number of users (adopters). For such products a crucial mass of adopters is often needed for the product to "take off" (Rogers, 2003). However, due to uncertainty it can be very challenging to assess factors such as buyers' willingness to pay, price sensitivity, competitor reactions, and the lifetime of the new high-tech product on the market, & thus pricing decisions become difficult (Dolan and Moon 2003).

The high-technology (high tech) development process, affected by the innovative process, brings products an incomparable value which stimulates product market demand. Innovation provides products the specific basis for which world economies compete with each other on the global market. Able to find novel solutions, innovations generate noteworthy changes in existing markets, destroy them, or build new markets (Hauser, Tellis and Griffin, 2006). Mohr, Sengupta and Slater, (2010) opined that there are two purpose why it is relevant to specify and clarify high tech: (1) due to the influence of technologies on the economy, efforts are made to categorize economic production and incomes; (2) due to the impact of high tech on the environment, standard marketing strategies are being modified and adapted, therefore, it is necessary to know the products to focus on. According to the Organisation for Economic Co-operation and Development (OECD) classification, which is generally used in economic analyses for innovation development, high-tech products are product innovations which can be grouped into technologically-new and technologically advanced products (Hatzichronoglou, 1997). According to Hecker (2005), high-tech firms are involved in the development and introduction of new products and/or innovative manufacturing processes through the systematic application of scientific and technical knowledge. On the basis of the above high-tech company concepts, it could be assumed that the products created and produced at such companies are high-tech products.

IV TECHNOLOGY OUTSOURCING

When a firm outsources its marketing, a single entity assumes responsibility for the marketing function. That might consist of everything from research, analysis, strategy, planning and management to implementation of direct marketing, advertising, public relations and internal communications. Outsourcing services provide the outsourcer with access to expertise large range of marketing disciplines,

experienced personnel from the outsource companies that can be scaled to suit projects of any size and scope at the same time and also providing flexibility that represents the first and most vital benefit of marketing outsourcing (Christopher, Payne and Ballantyne, 2013). The professional marketers clearly understand how to grab the customers' attentions and satisfy them. Furthermore, the firm who engages this expertise only pays for the services used for the length of time needed. Marketing outsourcing enables the firm to make enhancement to their core competencies (Chew and Rashad, 2015). For those companies that have their own marketing department, outsourcing the marketing function partially, frees up in-house personnel for more critical or sensitive responsibilities, or those suited to their strengths (Chew and Rashad, 2015). If a company does not retain its own marketing staff, outsourcing can provide a full fledged marketing strategy, support and deliverables, which allows the business to focus on its core competencies and boost productivity.

Outsourced marketing effectively boost the productivity of the company, and the relationships between the marketing outsource provider and their clients can simply be known as strategic partnerships. As we know, the cost of training marketing expertise is huge, the budget limitations of training employees make outsourced marketing a cost effective way to improve productivity of the company. Aubochon, Bandyopadhyay and Bhaumik (2012), observed that these specialist providers develop greater knowledge depth, invest more in software and training systems, are more efficient, and are able to offer higher wages and attract more highly trained people. Furthermore, the Companies and service providers must work together to foster innovation (Chang and Gurbaxani, 2012).

Specifically, firms must encourage providers with incentives, and both parties must cultivate a shared culture that produces constant waves of innovations within the client organization. Outsourced marketing will be one of the most effective tools to boost the productivity of a firm in this century, but also requires the difficult task of weighing the cost and benefit in deciding the degree what is being outsourced (Macdonald, 2014). The basic requirement nonetheless, is that the company understands that they cannot handle all the function of the marketing departments, and would do better to engage an external party to perform those functions more efficiently (Welch, 2005). Outsourcing can also free up valuable resources that, in turn, allow for vital resource reallocation toward core business operations to better serve organizational objectives (Burden and Li, 2005), while providing higher access to leading-edge technology and

restraining the focus to core competencies (Harris, Giunipero and Hult, 1998). Historically, technology support plays as a best effort role to help businesses function in a company and service level agreements (SLA) and its management are luxury in nature. In an outsourcing context, technology and innovation provides the essential foundation to disaggregate business processes and ease production process outsourcing by decreasing the complexities associated with communication and coordination across organizational boundaries. Technology also allows production plants to reintegrate the outcomes of outsourced processes back into their internal operations via superior codification and standardization of information exchange.

Technology outsourcing benefits include enhanced efficiency and cost savings, infusion of cash, reduced capital expenditure, quicker development of applications, improved services, access to new technological knowledge and technologies, and greater flexibility in technology and innovation resource management (Peter, Broadbent, Butler and Melbourne Business School, 1996). Lacity and Wilcocks (2000) categorize the desired benefits of technology outsourcing in terms of six strategic foci: financial restructuring (or cost efficiency), technology catalyst, business transition, core competence, business innovation and new market. The factors that lead to success are more business oriented than anchored in technical domain. It is vital to first understand the problem, and then find the right operation that fits the problem. This is the case when outsource technology final results may place technology to business needs, improving the management of projects change and having the appropriate balance level between the management expertise and technical know-how.

V R&D ACTIVITY

The surge of R&D activity has been associated with an increased interest in the rationale of firm performance. In the literature, the relationship between R&D activity and performance is mostly considered to be linear, and for the most part, R&D activity does have a positive effect on a company's performance (Morikawa, 2004; Fosfuri and Tribó, 2008). Eberhart, Maxwell and Siddique, (2004) use samples of US firms and also find that R&D has above average rates of return. Other proofs from the United Kingdom demonstrate that R&D contributes to market performance (Al-Horani, Pope and Stark, 2003). These studies show that a positive linear fit confirms the basic proposal of R&D studies, which argue that a greater R&D investment leads to improved performance. Mank and Nystrom (2001) contend

that R&D spending has a decreasing return in the computer industry, contradicting those previous findings.

Development is a process of transforming a country's economic structure towards the production and export of more complex products' (Felipe, Kumar, Abdon and Bacate, 2012). A firm's capacity to generate and incorporate technological innovations has been recognized as an essential contributory factor to success. Innovation has long been known as a vital force of economic growth and development. Empirical studies and surveys of firm activities indicate that innovation leads to novel and enhanced products and services, greater productivity and lower prices. As a result, economies that have constantly great levels of innovation are likely to have elevated levels of growth (Atkinson and McKay 2007).

In order to produce messages that will affect a pragmatic customer, high-tech firms frequently need to hire outside high-tech marketing experts, either by bringing them as full-time workers or by outsourcing to an external agency (MarCom, 2010). In either case, the strategy enables the firm to focus in R&D activities that will produce a better product and gain competitive edge. In most cases, firms use a hybrid model, having an in-house expert or team of experts assisted by an outside agency.

This method enables the firm to have an internal resource that will be their go-to-market strategist(s), which will define a plan to produce quantifiable marketing outcomes supported by external temporary resources (MarCom, 2010). Furthermore, since an increasing number of engineers and technical customers are doing more and more product research online, having a solid online presence via a specialized partner has become key. Technical customers have a strong preference for product literature, white papers, case studies, and articles from industry analysts and journalists. This kind of information aids technical customers aid their decisions and educate others concerned in the purchase process. This is why high-tech firms must assign specific resources to prevent losing market share in their new media strategy

Sustainable Competitive Advantage

Competitive advantage is sustainable when rival firms give up plans to emulate the resources of the competitors (Barney 2001; Haberberg and Rieple 2008; Grant 2010) or when setbacks to emulation are high (Hill and Jones 2009). When the emulated actions have come to an end without distracting the company's competitive advantage or when it is not easy or cheap to imitate, the company's competitive strategy can be called "sustainable". Hill and Jones (2009) observe that the pursuit for sustainable

competitive advantage has been the main objective in the study of a company's competitive strategy and generation of superior profitability. Porter, (2004) views the term sustainable as involving the protection of resources for a long interval of time into the future (Haberberg and Rieple 2008; Grant 2010; Hitt, Ireland and Hoskisson, 2007; Thompson, Peteraf, Gamble and Strickland, 2012). Saloner, Andrea, and Joel, (2001) have explained that the competitive advantage mainly connotes that the firm can produce goods or services that the customers seem them more valuable than those produced by other competitors.

The concept of sustainable competitive advantage can also be seen along the indicators of durability and imitability (Grant, 2010; Haberberg and Rieple, 2008; Wheelen and Hunger, 2010). Durability examines how long the competitive advantage is sustainable and is seen in terms of the ability of competitors to duplicate via attaining access to the competitive resources and competitive capabilities on which the competitive advantage is built. Wheelen and Hunger (2010) opined that durability represents the pace at which a firm's underlying competitive resources, competitive capabilities become obsolete, owing to causes including innovations and new technology.

Hill and Jones (2009) stated that the longer it takes for the competitors to achieve an imitation, the greater is the chance for the successful firm to improve on the core competencies, to stay a number of steps ahead of the competition (Grant, 2010; Hill and Jones, 2009; Thompson et al., 2012). Thus, the company's ability to delay imitations or duplication of its competitive resource base is essential to derive maximum benefit from any competitive advantage.

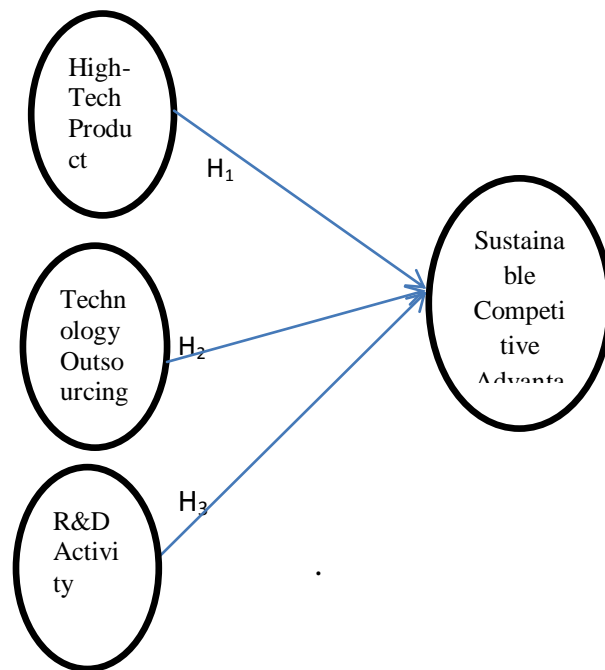
While other sources of sustained competitive advantage exist, core competencies are the direct source of sustainable competitive advantage on which most scholars generally agree (Grant, 2010; Hill and Jones, 2009; Hitt et al., 2007). Lynch (2009) explains that core competencies are technologies and special skills that allow a company to provide a specific value added to the customers, as they provide the foundation of core products and services which are at the centre of a company's activities.

Conceptual Model and Statement of Hypotheses

High-Tech Marketing

(Independent Variable)

(Dependent Variable)



Source: Researcher's Model (2017)

The development of new products using high tech aids firms to prosper by conquering their main competitors both in sales volume and company's financial indicators. Marketing outsourcing is aforementioned areas provided in the marketing department with an opportunity to work with experts who can render a professional and objective viewpoint in several areas (Belcourt, 2006). Similarly, it enables them to achieve novel knowledge, access new markets, create traction in the industry, reduce the threats and barriers of competition, improve resource efficiency, and obtain new skills (Klaas, McClendon and Gainey, 2001). Using the empirical studies of the US and Japan enterprises, Ito and Rose (1999) contend that R&D investment improves firm performance. Lev, Sarath, and Sougiannis, (2005) use data on US firms to show that past R&D expenditures have a significant positive effect on earnings.

The study hypothesized that:

H₁: *High tech product has significant relationship with sustainable competitive advantage*

H₂: *there is a significant relationship between technology outsourcing and sustainable competitive advantage*

H₃: *There is significant relationship between R&D activity and sustainable competitive advantage*

The Nigerian Smartphones Industry

Smartphones have become the main gadgets in this

21st century and it has revolutionized the mode of communication. It seems to have become an essential tool such that people are reliant and attached to their phones. One of the aims for this could be because the smartphone has integrated several other devices (such as calendar, calculator, game console, digital camera, music and video player) in itself to function as a single entity (Yufang, Bin and Qiaoyi, 2014).

The smartphone market in Nigeria is increasing with over 10 brands such as Samsung, i-Phone, Sony, LG, HTC, Nokia Lumia, BlackBerry, Tecno, ITEL, Gionee, Huawei, Infinix, etc An online study carried out by Ayeni, (2015) discovered that Samsung is the most popular android smartphone in Nigeria, followed by Infinix and then Tecno. Explaining the usage of smartphones in Nigeria, Arinze, (2014) postulate that the number of smartphone users is projected to increase from 5.6 million to 35 million between 2013 and 2017. Young people form the key part of this number drawing from the statement of Smith, (2015) that smartphone ownership is particularly high among young people. The versatile functions and operations of smartphone is the attraction for young people. It provides them easy access to information and entertainment building feeling of joy connectedness and productivity.

Theoretical Review

Symbolic Interactionism Theory

The thrust of this theory is that individuals act towards things based on the meaning these things (products) have for them, and these meanings are gotten from social interaction and customized via interpretation. The theory was presented by Herbert Blumer in 1969 with three propositions: (1) People act towards objects on the basis of the meaning they attribute to those objects. (2) The meaning of such objects arises out of, the social interaction that one has with others in the society. (3) These meanings are handled in, and customized via, an interpretative process used by the individual in dealing with the things him /her encounters (West and Turner, 2010). From the theory, things in the physical world are symbolic; that is people affix meaning(s) to them and these meanings are the root of associating with other individuals in the society.

The concept of high tech marketing draws strength from this theory in that high tech products carry symbolic meanings of technology and customers draw on them to satisfy their psychological needs. Customers draw meanings for products from marketer’s positioning efforts or through interactional experience. The meanings high tech products convey make the product more realistic to customers and easier for them to bond with the brand. The implication of

this theory for this study is that marketers need to uncover the sustainable competitive advantage of selling and distributing smartphone brands in order to remain relevant in the industry.

VI METHODOLOGY

The cross sectional survey research design method was adopted for the study. Out of the four hundred and fifty (450) employees and customers of the selected dealers of Smartphone’s in Onitsha, Anambra State the sample size of two hundred and twelve (212) was determined by Taro Yamen’s Formula for sample size determination. The stratified sampling method was employed. The research instrument that was employed in this study was a structured questionnaire which responds format was in the five point likert scale form whereby the respondents were asked to give answers ranging from strongly disagreed to strongly agree. Content validity was undertaken to ascertain whether the content of the questionnaire was appropriate and relevant to the study objective.

The strategy for generating the data for this study involved the administration of copies of validated questionnaire to the respondents. Hence the researcher used set of validated questionnaire to illicit information from the respondents

Table 1 Correlation between High Tech Product, Technology Outsourcing, R&D Activity and Sustainable Competitive

Variable	1	2	3	4
High Tech Product	1			
Technology Outsourcing	.807**	1		
R&D Activity	.797**	.621**	1	
Sustainable Competitive Advantage	.856**	.850**	.745**	1
Reliability	0.811	0.812	0.745	0.818
Mean	18.517	18.750	18.739	18.561
Standard deviation	1.5299	1.5167	1.4546	1.5649

** . Correlation is significant at the 0.01 level (2-tailed).
Source: Analysis of field survey, 2017

The covering letter that was addressed to the respondents was accompanied by the instrument which explained the objective of the study, assuring them of the confidentiality of their responses. In this study, the statistical techniques of data analysis were used. These include descriptive statistics, correlation and multiple regression analysis. Out of the 212 copies of questionnaire administered, 198 were returned, 18 were not properly filled by some respondents, while 180 were useable. Therefore, the analysis in this chapter is based on the usable sample size of 180.

Table 2: Model Summary
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.906 ^a	.820	.817	.6692

a. Predictors: (Constant), R&D activity , technology outsourcing , high tech product

Table 3: Fitness of the Model

ANOVA^a

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	359.506	3	119.835	267.581	.000 ^b
Residual	78.821	176	.448		
Total	438.328	179			

a. Dependent Variable: sustainable competitive advantage
b. Predictors: (Constant), R&D activity , technology outsourcing , high tech product

Table 4: Multiple Regression Analysis of High-Tech Marketing and Sustainable Competitive Advantage
Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-.572	.705		-.812	.418
high tech product	.325	.072	.317	4.514	.000
technology outsourcing	.485	.056	.470	8.663	.000
R&D activity	.215	.057	.200	3.773	.000

a. Dependent Variable: sustainable competitive advantage

VII RESULTS AND DISCUSSION

The study is centered on the effect of high tech marketing on sustainable competitive advantage in the Nigerian Smartphone industry. The results of the correlation analysis in table 1 involving all the components of high tech marketing exhibited positive correlation coefficient values among the components. The correlation analysis showed that high tech product exhibited significant positive correlation value with sustainable competitive advantage ($r = .856^{**}$, $P < .01$). Similarly there is a positive correlation between high tech product and technology outsourcing ($r = .807^{**}$, $P < .01$), and also with R&D activity ($r = .797^{**}$, $P < .01$). Technology outsourcing which is the second variable exhibited the positive and significant correlation with sustainable competitive advantage ($r = .850^{**}$, $P < .01$), and also with R&D activity ($r = .621^{**}$, $P < .01$). R&D activity which is the last variable has positive correlation with sustainable competitive advantage ($r = .745^{**}$, $P < .01$). This indicated that they were all appropriate variables of high tech marketing.

Table 2 showed that change in sustainable competitive advantage which is brought about by the variables of high-tech marketing by 82% (.817) as indicated by the adjusted R² value.

The F-ratio in table 3 indicated that the independent variables statistically significantly predict the dependent variable, $F(3, 176) = 267.581$, $p < .0005$. This implies that the regression model is a good fit of the data. Table 4 exhibited the multiple regression analysis result for high-tech marketing and sustainable competitive advantage. Table 4 showed that high tech product which is the first variable has positive effect on sustainable competitive advantage ($\beta = .317$, $P < 0.01$). On the same note, the test of hypothesis indicated in table 4 revealed that high tech product has significant relationship with sustainable competitive advantage. This is in consonance with the view of Mohr, (2001) that customers' decisions about whether or when to adopt a new generation of technology largely depend on their expectations about the pace and magnitude of product enhancement.

Technology outsourcing which is the second variable has the highest positive effect on sustainable competitive advantage ($\beta = .470$, $P < 0.01$). Similarly, the test of hypothesis indicated in table 4 showed that there is a significant relationship between technology outsourcing and sustainable competitive advantage. This is in agreement with Peter, Broadbent, Butler and Melbourne Business School, (1996) assertions that technology outsourcing benefits include enhanced efficiency and cost savings, infusion of

cash, reduced capital expenditure, quicker development of applications, improved services, access to new technological knowledge and technologies, and greater flexibility in technology and innovation resource management. It was reported that R&D activity which is the last variable has positive effect on sustainable competitive advantage ($\beta = .200$, $P < 0.01$). Likewise, the test of hypothesis exhibited in table 4 showed that there is significant relationship between R&D activity and sustainable competitive advantage. This is consistent with Morikawa, 2004; Fosfuri and Tribó, 2008 assertions that the relationship between R&D activity and performance is mostly considered to be linear, and for the most part, R&D activity does have a positive effect on a company's performance. The general form of the equation to predict $SCA = \beta_0 + \beta_1HTP + \beta_2TO + \beta_3RDA + \varepsilon$. Therefore, $SCA = -.572 + (0.325 \times HTP) + (0.485 \times TO) + (0.215 \times RDA)$

VIII CONCLUSIONS

High technology products have sure prominent attributes that distinguish them from low technology consumer products. The marketers of the products of the latter type may alter their marketing strategies to replicate comparatively unchanging technological situations.

Outsourcing can free up valuable resources that, in turn, allow for vital resource reallocation toward core business operations to better serve organizational objectives. A firm's capacity to generate and incorporate technological innovations has been recognized as an essential contributory factor to success.

Recommendations

High technology firms, however, must recognize that both technological and marketing conditions are constantly dynamic. High technology markets are attributed by their dynamism and complexity which necessitate a changing target market over their life-cycle.

As high technology products are more complicated, they need higher customer education and more product information. Alternatively, marketing communications about new products could be done in a bipolar style, such that the messages convey informational cues while evoking an emotional response.

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