

## ENVIRONMENTAL SCANNING AS A STRATEGIC TOOL FOR NEW VENTURE CREATION IN NIGERIAN CORPORATE ORGANISATIONS

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### ABSTRACT

In Nigeria, most organization managers absolutely ignore scanning the turbulent and complex environments in which they operate. The absolute neglect to constantly scan the environments by organisation management often result in colossal consequences of not developing new ventures, non-identification of threats and weakness, new opportunities and strengths not improved upon, inadequate new job creation, decrease in profit base and dwindling productivity/performance of the organisation. Based on these problems, this paper examined the extent to which environmental scanning as a strategic management tool could address the problems of new venture creation and product innovation within Nigerian corporate organisations in order to sustain competitive advantage. Two firms in the South East, Nigeria plastic manufacturing industry were selected for investigation. Questionnaire was designed using five point Likert scales. Data collected were summarized in tables, percentages and, analyzed with Pearson's Product Moment Correlation Coefficient at 5% level of significance using n-2 degrees of freedom. The result was subjected to t-statistic test. It was discovered that environmental scanning has significance positive relationship with new venture creation and that product innovation is as a result of environmental scanning by the firms. Based on the findings, the study recommended that plastic firms in the South East, and Nigeria should constantly scan the environments in which they operate so as to continually innovate their products and create more ventures that will firm's sustain competitive advantage.

**KEYWORDS:** Environmental Scanning, New Venture Creation, Nigerian Corporate Organisations

### INTRODUCTION

Environment with its turbulent, complex, dynamic, hostile and heterogeneous nature affects firms in one way or other. In order to unveil and avert the contravening environmental variables cascading business organisations, different firms embark on intensive and constant scanning the environments of the business. Environmental scanning as one of the strategic management tools is infrequently adopted by firms that would assist identify strengths, weakness, opportunities and threats inherent in business environs. Scanning refers to the managerial activity of learning about events and trends in the organizational environment (Hambrick, 1981) and identifying early signals of environmental changes and trends (Hitt, Hoskisson and Ireland, 2007). This implies careful scrutinizing inside and outside firms environments with the view of becoming more responsive to early cryptogram of weaknesses and threats that could mar or make the existence of corporate organisations or put unprecedented hassle on firms' contemporary and potential plans. The first thing is to identify the key components and the characteristics of the environment in which the firm operates with a view to reducing the threats and weakness associated with it. This corroborates the position of Barringer, Allen and Bluedorn (1999) who

contend that environmental scanning is a surveillance system for early detection of the immediate business surrounding and further stressed that it is an 'uncertainty absorption' in the sense that the unknown threats and weakness could be identified in the course of scanning the business environment and deal with such agents.

Bluedorn, Cartwright and Barringer (1994) posit that environmental scanning provides managers with information about events and trends which facilitate opportunity identification. It has been argued that one of the most important intentions of environmental scanning is to detect transformations or variations that are already in progress within the business environment with the view to putting them right or controlling them. Environmental scanning assists business operators to monitor, predict and assess the business environments. These agents may be the macro (external or far) environment such as political, cultural, social and demographic factors, or micro (internal or near) environments such as the organisation, competitors, supplier and customers that influences business organisations or firms. Scanning business environment can also assist business managers to cope with uncertainty and avoid obsolescence of products or services by creating new ones, but only if the management can be conscious of the fact that uncertainty can only be reduced to some extent but cannot be totally eliminated. Environmental scanning firms could lead to innovation, job creation, opportunities identification, new venture creation and even increasing intrapreneuring activities. The study focused on two firms in the South East, Nigeria. - Double Diamond Plastic Industries Limited Aba and Innoson Technical and Industrial Company Limited, Emene, Enugu.

Double Diamond Plastic Industries Limited was incorporated on the 29<sup>th</sup> day of March 1989 with the head office located at 107 Okigwe Road, Aba Abia State. The operations site of the firm is located at kilometer 2, Umuaduru road by Port-Harcourt-Enugu express way, Osisoma Ngwa Local Government Area, Abia State (Double Diamond Plastic Industries Limited, Bulletin, 2015). The firm produces plastic wares like: bread wrappers, hangers, plastic sheeting, polythene bags, jerry cans, plastic buckets, bowls, plastic plates, spoons and souvenirs, bottle carriers among others. The firm has staff strength of two hundred and seventy-two (272) (Double Diamond Plastic Industries Limited, Bulletin, 2015).

Innoson Technical and Industrial Company Limited, Emene, Enugu is a subsidiary of Innoson Group of Companies incorporated in 2002 with the Head Office/Factory located at Plot W/L Industrial Layout, Emene in Enugu State, Nigeria. The firm engages in the manufacturing of plastic materials such as plates, chairs, tables, trays, Cups, and Jerricans and other allied plastic products, for domestic and industrial uses (Innoson Technical and Industrial Company Limited, Bulletin, 2015). The staff strength of the firm is one thousand five hundred (1500), made up of indigenous and expatriate employees (Innoson Technical and Industrial Company Limited, Bulletin, 2015).

## **STATEMENT OF THE PROBLEM**

Evidences has shown that scanning business environment impact positively on firm's existence that could stimulate new venture creation, innovation, job creation, opportunities identification among others. While this statement may be true, its validity is yet to be verified using the two selected Plastic products manufacturing firms in the South-East, Nigeria. These two firms (Double Diamond Plastic and Innoson Technical and Industrial Companies are not known to have adopted environmental scanning as a strategic tool for creating new ventures, product innovation, facilitating industrial growth, job creation and identification of opportunities and threats within the respective firms. In Nigeria and in the South East States in particular, firms are known to be conservative, strict adherence to bureaucratic organisational structure in the performance of their functions with the sole aim of maximizing profit. This they do without recourse to variables that may

negatively influence the achievement of such laudable objectives. These result in obsolescence of the organisational products or services, loss of potential customers, lack of ability to create new ventures that could stimulate industrial growth, inability to create job opportunities, unable to reduce threats and weaknesses and more emphatically the inaptitude of management to improve on the existing strengths and opportunities of the firm. Worried by these problems, the study was motivated by the desire to investigate the extent to which environmental scanning has helped to innovate firm's products and create new business ventures within the two plastic products manufacturing firms in the South East Nigeria.

## **OBJECTIVE OF THE STUDY**

The objectives of this study are:

- To determine the extent to which there is a significant positive relationship between environmental scanning and new venture creation in the selected plastic products manufacturing firms in the South East Nigeria
- To ascertain the extent of the positive relationship between environmental scanning and product innovation in the two selected plastic products manufacturing firms in the South East, Nigeria.

## **Research Questions**

The following research questions were formulated as a guide to effectively assist the investigator in the development of the hypotheses

- To what extent is there a significant positive relationship between environmental scanning and new venture creation in the selected plastic products manufacturing firms in the South East Nigeria?
- To what extent is there a positive relationship between environmental scanning and product innovation in the two selected plastic products manufacturing firms in the South East Nigeria?

## **Research Hypotheses**

The following hypotheses stated in null format were carefully formulated to serve as a guide and strengthen the study.

- H<sub>01</sub>: There is no significant positive relationship between environmental scanning and new venture creation in the selected plastic products manufacturing firms in the South East Nigeria
- H<sub>02</sub>: There is no positive relationship between environmental scanning and product innovation in the two selected plastic products manufacturing firms in the South East Nigeria

## **SCOPE OF THE STUDY**

This study on Double Diamond Plastic Industries, Aba and Innoson Technical and Industrial Company, Enugu State of the South East, Nigeria focused on environmental scanning and its dependent variables that included new venture creation and product innovation.

### **New Venture Creation in a Firm**

New venture is being conceptualized variously by business operators in terms of new product, market or service that are not known to particular firms, companies or customers before. The process of turning a new idea or technology into a business that can succeed and attract potential investors is a new business (<http://dictionary.cambridge.org/dictionary/business-english/venture-creation>, 2012). In corporate organisations, management infrequently tries to recognize a possible business initiative, pay attention to them and transmits that to new idea and new venture creation. New venture is the by-product of environmental scanning. To create new venture or business, the existing businesses, products, markets and services may be cannibalized to give chance for the creation of new ones conceived. Markides (1998) posit that the fear of cannibalization is an obstacle to strategic innovation and stress that everyone would agree that an entirely new product for entirely new market constitutes new business venture. This corroborates 'creative destruction' conceptualized by Schumpeter when explaining the nature of entrepreneurs. New venture creation may involve market extension, business expansion, existing market, existing product and product extension or may be in forms of new markets, products or services that are distinct from the existing ones.

The common sense for calling such business new is that the entry into entirely new businesses requires much new learning about logistics, allocation channels; advertising among others and the development of an entirely new product requires similar new learning about design, development and manufacturing (Dougherty and Hardy, 1996). New venture might as well be consistent with the existing strategy or form what Burgelman (1983) refers to as "autonomous strategic behaviour" that falls outside the current concept of strategy (Hof, 1993, and Robello, 1994). Environmental scanning obviously creates new businesses, services and markets better than they were before for the benefit of the firm, employee and the larger society

### **Dimensions of New Venture Creation in a Firm**

New venture creation like any other resultant effects of environmental scanning has a scope upon which it operates in order to achieve success. Gartner (1995) cited in Dollinger (2006) put forward the dimensions of new venture creation by conceptualizing and describing the phenomenon to be of four major categories namely: individual and its characteristics, environment of the firm, the organisation and the constraints in the environment which focused on the barriers to entry. The four dimensions of new venture creation are explained as follows:

**Individual and its Characteristics:** Employees in firms play critical roles in new venture creation with the support of top management. The individual capabilities to create new venture is a function of psychological, sociological, and demographic characteristics of such individuals. Sociological dynamics of individuals such as perceptions of desirability, feasibility, role models and mentors, networks and contacts, while the psychological features consist of locus of control, knowledge, reputation, need for achievement and propensity to take risk also helps to create venture. The demographic variable of individuals such as gender and education determine the intrapreneurial abilities of such individuals. Age plays its part but is less significant, because plastic firms do not engage people who are under age.

**Environment of the Firm:** Environment of business is ever changing and ever-evolving such that the only permanent thing about the business environment is change and that it is capable of producing surprises and shocks. Environment at times make available opportunities which may be in the form of business, money, people and technology,

and at times poses threats such as government policies, technological changes, socio-demographic and the ecosystem for new venture creation. Resources in the environment that may incite new venture creation include: availability of venture capital, financial resources, and experience intrapreneurs.

**Organisation:** An organisation is made up of people who have expertise and talents, values and beliefs, and maybe in recognition that by working together, they can generate something extraordinary. Okafor, et al., (2010) strengthened this view by saying that an organisation is said to be formed by two or more people working together to achieve certain goals. The formation of organisation may be for business or non-business purposes. For the fact that the formation of organisation involves individuals or groups' of individuals, in most cases, the individuals and organisational goals tend to conflict with each others. The ability of organisational employee to embark on new business creation is dependent on the organisational culture and firm's top management support to the employees. Dollinger (2006) posits that organisation can have a culture that supports high performance and high quality. In this situation, new business venture could be stimulated.

**Constraints in the Environment:** Constriction such as government influences, rivalry among existing competitors, pressures from substitutable products, bargaining power of buyers and suppliers constitute barriers to entry in new business venture. The implication of this is that, for the enormous greater part of economic organisations, the existing firms have edge over new ones to create new business venture. In some situations, certain individuals with managerial capabilities create new ventures in firms and achieve superior performance.

### Research Design

The study adopted correlational research design. The decision to use correlational design was informed by the fact that the investigation is aimed at establishing the extent of the relationship between environment scanning as independent variable and new venture creation and product innovation as dependent variables. To achieve the objective of the study, Pearson's Product Moment Correlation Coefficient (r) was used given by:

$$r = \frac{n\sum(xy) - (\sum x)(\sum y)}{\sqrt{[n(\sum x^2) - (\sum x)^2][n(\sum y^2) - (\sum y)^2]}}$$

Where r = Correlation coefficient to be determined

$\sum$  = Sigma or summation sign

x = Variable in the paired observation

y = Variable in the paired observation

n = Number of paired observations

$\sqrt{\quad}$  = Square root

To derive the correlation coefficient (r) for the variables, survey instrument was used. Questionnaire was structured and administered on the respondents randomly drawn from the two plastic products manufacturing firms under investigation. A 5-point Likert scale was used in designing the questionnaire. The structured questionnaire was used to generate the data needed for the computation of the correlation coefficient (r).

### Area of Study

Geographically, this study covered Abia and Enugu States in the South East, Nigeria. The study concentrated on Double Diamond Plastic Industries Limited, Aba, in Abia State and Innoson Technical and Industrial Company Ltd, Emene, in Enugu State.

### Population of the Study

The population of the study is one thousand and seventy-three (1073) comprising the corporate executives, departmental managers/deputies and senior staff drawn from the two firms under investigation. The distribution of the population is: Double Diamond has 272 while Innoson Technical and Industrial Company have 1500 staff.

### Sampling and Sample Size Determination

To determine the sample size (n) from the total population, the study used Taro Yamane's formular'' given by:

$$n = \frac{N}{1 + N(e)^2}$$

Where  $n^*$  = the unknown sample size to be determined

$N$  = the total population of the study which is 1073

$e$  = the level of significance at 5%

1 = constant

The level of significance chosen was 5%, suggesting a five percent likelihood of a type 1 error. Substituting in the formular, we have:

$$\begin{aligned} \text{Hence, } n^* &= \frac{1073}{1 + (1073)(0.05)^2} \\ &= \frac{1073}{1 + 1073(0.0025)} \\ &= \frac{1073}{1 + 2.6825} \\ &= \frac{1073}{3.6825} = 291 \end{aligned}$$

Therefore, the sample size for the study is two hundred and ninety-one (291). Distribution of questionnaire to the respondents was achieved by using Bowley's Proportionate Sample Allocation Technique'' given by:

$$n^1 = n^* (k)/N$$

Where  $n^1$  = Proportionate sample size for the ith ( $i = 1, 2$ ) firm

$n^*$  = Sample size derived using Taro Yamane's formular''

$k$  = Proportion of the population for the ith of the firm ( $i = 1, 2$ )

$N$  = Population of the study

Substituting the values of  $n^*$ ,  $k$  and  $N$  in the formular, we have:

$$\text{Double Diamond Plastic Industries Ltd, Aba is equal to: } \frac{118 \times 291}{1073} = 32$$

$$\text{Innoson Technical and Industrial Company Ltd, Enugu is: } \frac{955 \times 291}{1073} = 259$$

### Method of Data Collection and Administration of Instrument

Primary source of data collection method formed the basis for eliciting the necessary data required from the respondents. Structured questionnaire that contained twenty six (26) questions made up of 25 close-ended and 1 open-ended were administered on the respondents. The questionnaire was grouped into sections. Section A is demographic data of the respondents; section B contained questions on environmental scanning and new venture creation; Section C contained questions on environmental scanning and product innovation; while section D contained questions on the general level of environmental scanning in the two plastic firms.

However, out of the two hundred and ninety-one (291) questionnaires administered on the respondents, two hundred and seventy-one (271) copies were retrieved and this was used for the analysis.

### Validity of Research Instrument

To guarantee that the instrument actually measured what it was intended to measure, the research instrument was submitted to professional academics for vetting. Their observations, views, suggestions and recommendations were reflected in the modifications made.

### Reliability of Research Instrument

The test-retest method was applied to obtain the reliability of the instrument. To achieve this, pilot test was conducted using thirty-two (32) copies of the structured questionnaire administered on the respondents. After seven (7) days interval, the same number of questionnaires was administered on the same group of respondents. The two scores were correlated and tested with Spearman Rank Correlation Coefficient ( $r^1$ ) given by:

$$r^1 = 1 - \frac{6\sum d^2}{n(n^2 - 1)}$$

Where:  $d$  = difference between pairs of rank i.e. 18.35

$\Sigma$  = Sigma or summation sign

$n$  = the number of data paired i.e. 16

1 = Constant

The value obtained from the scales of the questions which is 18.25 was substituted in the Spearman Rank Correlation Coefficient ( $r^1$ ) formular and the result is 0.97. For the fact that the rank correlation coefficient  $r^1$  calculated is 0.97 implies that there is considerable agreement between the two sets of reliability test. Based on this result, the instrument was taken to be reliable and thus used for the investigation.

### Operationalization of Variables

To determine the relationship between the two variables coded as x and y, the variables was operationalized. The operationalized variables are environmental scanning, new venture creation and product innovation. Questions from the operationalized variables were carefully structured to reflect the research objectives. The questionnaire was designed using five-point Likert scale coded as “Strongly agree” (SA) = (5); ‘Agree’ (A) = (4); ‘Disagree’ (D) = (3); ‘Strongly disagree’ (SD) = (2), and to ‘Indifference’ (I) = (1).

### Method of Data Analysis

The data collected were presented in frequency tables and percentages. The analytical technique used is Pearson’s Product Moment Correlation Coefficient denoted by r while the t-statistic ( $t_r$ ) was used to test the hypotheses given by:

$$t_r = \frac{r\sqrt{N-2}}{\sqrt{1-r^2}}$$

Where,  $t_r$  = the unknown test of significance

n = the number of observations

$r^2$  = coefficient of determination

$N - 2$  = the degree of freedom

$\sqrt{\quad}$  = root of the numbers involved

1 = constant

After the correlation coefficient (r) was determined for each of the two hypotheses, the coefficient of determination ( $r^2$ ) was calculated to find out the total variations in the dependent variable (y) that is explained by the total variation in the independent variable (x). The results of the coefficient of determinations were subjected to t-test ( $t_r$ ) to establish the levels of significance of correlation coefficient (r) results as against the critical (table) t value.

### Decision Rule

Reject the null hypothesis ( $H_0$ ) if the computed critical  $t_r$  value is greater than the critical (table) t value at 5% level of significance and degree of freedom (df), equal to n-2. Otherwise, accept the alternate (research) hypothesis ( $H_A$ ).

### Determine of the Extent of the Significant Positive Relationship between Environmental Scanning and New Venture Creation in the Selected Plastic Products Manufacturing Firms in the South East Nigeria

Question numbers 18, 19, 20 and 21 were used to determine whether objective one can be achieved while question numbers 20 and 21 were further used to test hypothesis one. The analyses of the responses is presented in Table 1



**Table 1: Extent of the Significant Positive Relationship between Environmental Scanning and New Venture Creation in Selected Plastic Products Manufacturing Firms in Abia and Enugu States**

S/N	Statement	SA	A	I	D	SD	Total
18	Environmental scanning is one of the priorities of the firm in order to create new venture	106	94	34	25	12	271
		(39.1)	(34.7)	(12.6)	(9.2)	(4.4)	(100)
19	The need to create new venture stimulated environmental scanning in the firm	100	103	32	21	15	271
		(36.9)	(38.0)	(11.8)	(7.8)	(5.5)	(100)
20	Environmental scanning is essential in order to create new venture	112	87	30	26	16	271
		(41.3)	(32.1)	(11.1)	(9.6)	(5.9)	(100)
21	New venture created is as a result of environmental scanning embarked upon in order to sustain competitive advantage	105	89	44	19	14	271
		(38.8)	(32.8)	(16.2)	(7.0)	(5.2)	(100)

Source: Field Survey, 2015

Based on the data in Table 1, responses from question 18 indicates that 106 (39.1%) strongly agreed with the statement, 94 (34.7%) answered agreed, 34 (12.6%) were indifference, 25 (9.2%) disagreed while 12 (4.4%) strongly disagreed. Responses from question 19 in Table 1 shows that 100 (36.9%) strongly agreed with the statement, 103 (38.0%) agreed, 32 (11.8) were indifference, 21 (7.8%) disagreed while 15(5.5) strongly disagreed. With regard to question 20, 112(41.3%) strongly agreed, 87 (32.1%) agreed, 30(11.1%) were indifference, 26 (9.6%) disagreed while 16 (5.9%) strongly disagreed. Responses from question 21 indicates that 105 (38.8%) strongly agreed with the statement, 89 (32.8%) agreed, 44 (16.2) were indifference, 19 (7.0%) disagreed while 14(5.2%) strongly disagreed.

The results of the analysis shows that majority of the respondents indicated that there is a significant positive relationship between environmental scanning and new venture creation in the selected plastic products manufacturing firms in Abia and Enugu States in order to sustain competitive advantage.

#### **Determination of the extent of the positive relationship between environmental scanning and product innovation within the two selected plastic products manufacturing firms in the South East, Nigeria**

Question numbers 22, 23, 24 and 25 were used to determine whether objective two can be achieved while question numbers 24 and 25 were further used to test hypothesis two. The analyses of the responses are presented in Tables

2

**Table 2: Extent of the Positive Relationship Between Environmental Scanning and Product Innovation within the Two Selected Plastic Products Manufacturing Firms in the South East, Nigeria**

S/N	Statement	SA	A	I	D	SD	Total
22	Environmental scanning is one of the priorities adopted to stimulate product innovation	104	94	30	22	21	271
		(38.4)	(34.7)	(11.1)	(8.1)	(7.7)	(100)
23	In order to stimulate product innovation firm always embark on environmental scanning	112	91	28	23	17	271
		(41.3)	(33.6)	(10.3)	(8.5)	(6.3)	(100)
24	Environmental scanning is essential for the firm in order to innovate their product that creates new market	109	90	35	24	13	271
		(40.2)	(33.2)	(12.9)	(8.9)	(4.8)	(100)
25	Product innovation within the firm is as a result of intensive environmental scanning	102	93	39	21	16	271
		(37.6)	(34.3)	(14.4)	(7.8)	(5.9)	(100)

Source: Field Survey, 2015

In Table 2, the analysis of data in question twenty-two reveals that 104(38.4%) of the respondents strongly agreed with the statement, 94(34.7%) agreed, 30 (11.1%) were indifference, 22 (8.1%) disagreed while 21(7.7%) strongly disagreed. With regard to question twenty-three, 112(41.3%) strongly agreed, 91 (33.6%) agreed, 28 (10.3%) were indifference, 23 (8.5%) disagreed where as 17 (6.3%) strongly disagreed. Question twenty-four reveals that 109 (40.2%) of the respondents strongly agreed, 90 (33.2%) agreed with statement, 35(12.9%) were indifference, 24(8.9%) disagreed whilst 13 (4.8%) strongly disagreed. Question twenty-five indicates that 102(37.6%) of the respondents strongly agreed, 93 (34.3%) agreed, 39 (14.4%) were indifference, 21(7.8%) disagreed as 16(5.9%) of the respondents strongly disagreed.

The result of the analysis shows that there is significant positive relationship between environmental scanning and product innovation within the two selected plastic products manufacturing firms in the South East, Nigeria. This result was subjected to test of hypothesis to ascertain the level of the relationship.

#### Generation of Data for Testing Hypothesis 1

Q 20: Environmental scanning is essential order to create new venture that enhanced industrial growth

Q 21: New venture created is as result of intensive environmental scanning embarked upon by the firm in order to sustain competitive advantage

**Table 3: Summary of Responses to Questions 20 and 21 Relating to Hypothesis 1**

Number	Responses to Question 24 (X)	Responses to Question 25 (Y)
271	1055	1071

Source: Field Survey, 2012

Table 3 shows the summary of responses to questions 20, environmental scanning (independent variable, X) and question 21, new venture creation (dependent variable, Y) relating to hypothesis one generated from the survey of the two selected plastic products manufacturing firms in Abia and Enugu States. The sum of the responses for the 271 respondents for questions 24 and 25 are X= 1055 and Y= 1071.

### Hypothesis 1

H<sub>0</sub><sub>1</sub>: There is no significant positive relationship between environmental scanning and new venture creation in the selected plastic products manufacturing firms in the South East, Nigeria

H<sub>A</sub><sub>1</sub>: There is a significant positive relationship between environmental scanning and new venture creation in the selected plastic products manufacturing firms in the South East, Nigeria.

**Table 4: Test of Hypothesis 1 (Summary of Data Generated from the Respondents)**

No	X	Y	XY	X <sup>2</sup>	Y <sup>2</sup>
n=271	∑y=1055	∑y=1071	∑xy=4433	∑x <sup>2</sup> =4451	∑y <sup>2</sup> =4587

Source: Field Survey, 2015

Table 4 shows the computed summary of independent variable (X) and dependent variable (Y) required to test hypothesis 1 as calculated from Table 3. Based on Table 4, the number of respondents is equal n= 271, ∑x =1055, ∑y= 1071, ∑xy=4433, ∑x<sup>2</sup>=4451, and ∑y<sup>2</sup>=4587

Computation of Correlation Coefficient:

$$r = \frac{n\sum(xy) - (\sum x)(\sum y)}{\sqrt{[n(\sum x^2) - (\sum x)^2][n(\sum y^2) - (\sum y)^2]}}$$

$$= \frac{271(4433) - (1055)(1071)}{\sqrt{[271(4451) - (1055)^2][271(4587) - (1071)^2]}}$$

$$= \frac{1201343 - 1129905}{\sqrt{(1206221 - 1113025)(1243077 - 1147041)}}$$

$$= \frac{71438}{\sqrt{(93196)(96036)}}$$

$$= \frac{71438}{94605} = 0.76$$

$$\text{Coefficient of determination } r^2 = (0.76)^2$$

$$= 0.5776$$

Computation of t<sub>r</sub> value:

$$t_r = \frac{r\sqrt{N-2}}{\sqrt{1-r^2}}$$

Substituting r and N with 0.76 and 271 values, we have:

$$t_r = \frac{0.76\sqrt{271-2}}{\sqrt{1-(0.76)^2}}$$

$$= \frac{0.76\sqrt{(269)}\sqrt{(1-(.76)^2)}}{\sqrt{1-(.76)^2}}$$

$$= \frac{0.76\sqrt{(269)}\sqrt{(1-0.5776)}}{\sqrt{1-0.5776}}$$

$$= \frac{0.76\sqrt{(269)}\sqrt{0.4224}}{\sqrt{0.4224}}$$

$$= 19.18$$

## Decision

For Hypothesis 1:  $r = 0.76$ ,  $r^2 = 5776$  and  $t_r = 19.18$ . At 0.05% level of significance and 2 degree of freedom,  $H_{01}$  should be rejected if computed  $t_r$  critical value is greater than the critical (table)  $t$  value. Based on the alpha value (0.05) of 0.76 and computed  $t_r$  value of 19.18, the study reject the null hypothesis ( $H_{01}$ ) that there is no significant relationship between environmental scanning and new venture creation in the selected plastic products manufacturing firms in Abia and Enugu States. As a result, the alternate hypothesis ( $H_{A1}$ ) is therefore accepted.

## Generation of Data for Testing of Hypothesis 2

Q 24: Environmental scanning is essential for the firm in order to embark on product innovation within the firm that creates new market

Q 25: Product innovation within the firm is as a result of intensive environmental scanning

**Table 5: Summary of Responses to Questions 20 and 21 Relating to Hypothesis 2**

Number	Responses to Question 24 (X)	Responses to Question 25 (Y)
271	1058	1079

Source: Field Survey, 2015

Table 5 shows the summary of responses to questions 24, environmental scanning (independent variable, X) and question 25, product innovation (dependent variable, Y) relating to hypothesis two generated from the survey of the two selected plastic products manufacturing firms in Abia and Enugu States. The sum of the responses for the 271 respondents for questions 24 and 25 are  $X = 1058$  and  $Y = 1079$ .

## Hypothesis 2

$H_{02}$ : There is no positive relationship between environmental scanning and product innovation in the two selected plastic products manufacturing firms in the South East Nigeria

$H_{A2}$ : There is a positive relationship between environmental scanning and product innovation in the two selected plastic products manufacturing firms in the South East Nigeria

**Table 6: Test of Hypothesis 1 (Summary of Data Generated from the Respondents)**

No	X	Y	XY	$X^2$	$Y^2$
n=271	$\sum y = 1058$	$\sum y = 1079$	$\sum xy = 4532$	$\sum x^2 = 4353$	$\sum y^2 = 4972$

Source: Field Survey, 2015

Table 5 shows the computed summary of independent variable (X) and dependent variable (Y) required to test hypothesis 2 as calculated from Table 5. Based on Table 6, the number of respondents is equal  $n = 271$ ,  $\sum x = 1058$ ,  $\sum y = 1079$ ,  $\sum xy = 4532$ ,  $\sum x^2 = 4353$ , and  $\sum y^2 = 4972$

Computation of Correlation Coefficient:

$$\begin{aligned}
 r &= \frac{n\sum(xy) - (\sum x)(\sum y)}{\sqrt{[n(\sum x^2) - (\sum x)^2][n(\sum y^2) - (\sum y)^2]}} \\
 &= \frac{271(4532) - (1058)(1079)}{\sqrt{[271(4353) - (1058)^2][271(4972) - (1079)^2]}} \\
 &= \frac{1228172 - 1141582}{\sqrt{(1179663 - 1119364)(1347412 - 1164241)}} \\
 &= \frac{86590}{\sqrt{(60299)(183171)}} \\
 &= \frac{71438}{105095} = 0.68
 \end{aligned}$$

$$\begin{aligned}
 \text{Coefficient of determination } r^2 &= (0.68)^2 \\
 &= 0.4624
 \end{aligned}$$

Computation of  $t_r$  value:

$$t_r = \frac{r\sqrt{N-2}}{\sqrt{1-r^2}}$$

Substituting r and N with 0.68 and 271 values, we have:

$$\begin{aligned}
 t_r &= \frac{0.68\sqrt{271-2}}{\sqrt{1-(0.68)^2}} \\
 &= \frac{0.68\sqrt{(269)/\sqrt{(1-(.68)^2)}}}{\sqrt{1-(0.68)^2}} \\
 &= \frac{0.68\sqrt{(269)/\sqrt{(1-0.4624)}}}{\sqrt{1-(0.68)^2}} \\
 &= \frac{0.68\sqrt{(269)/\sqrt{0.5376}}}{\sqrt{1-(0.68)^2}} \\
 &= 15.27
 \end{aligned}$$

### Decision

For Hypothesis 2:  $r = 0.68$ ,  $r^2 = 0.4624$  and  $t_r = 15.27$  at 0.05% level of significance and 2 degree of freedom.  $H_0$  should be rejected if computed  $t_r$  critical value is greater than the critical (table) t value. Based on the alpha value (0.05) of 0.68 and computed  $t_r$  value of 15.27, the study reject the null hypothesis ( $H_0$ ) that there is no positive relationship between environmental scanning and product innovation in the two selected plastic products manufacturing firms in the South East Nigeria. As a result, the alternate ( $H_{A2}$ ) that there is a positive relationship between environmental scanning and product innovation in the two selected plastic products manufacturing firms in the South East Nigeria is therefore accepted.

### CONCLUSIONS

Based on the analysis of the data collected, the study concludes that the creation of new ventures is as a result of environmental scanning prevalent in the firms. The study also concludes that environmental scanning embarked by firms result in product innovation that sustains the firm's competitive advantage. Besides the above, environmental scanning stimulates industrial growth, opportunity identification that create employment.

## RECOMMENDATIONS

Based on the conclusions drawn from the study, the following recommendations are made:

- That each plastic manufacturing organisation in the South East, Nigeria should adopt environmental scanning as a strategy for new venture in order to sustain competitive advantage.
- That environmental scanning as a strategic tool should be institutionalized as organisational culture as a way of taking proactive actions.
- That environmental scanning as a tool for solving organisational problems should be embarked upon as soon as problem(s) is/are identified within and outside the organisation
- Firms whether in the private and public sectors should lay emphasis on constant and intensive environmental scanning so as to identify weakness and threat, opportunities and strengths, for the benefit of the organisations and the society as a whole.

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