

## **Effect of Intrapreneurship on Productivity of Manufacturing Companies in North Central Nigeria**

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**Abstract:** *The main objective of this study was to analyze the effect of intrapreneurship on productivity of manufacturing companies in North Central Nigeria. The study is a correlational study because it involves the examination of the effect of independent variables on dependent variables. The study is also a demographic study because it examined variables using tables, frequencies and percentages. Since the selected population of the study is not too much; the whole population size was used as sample size which is 165 respondents. The relationship variables of independents and dependent items were measured using a five-point Likert-like scale ranging from one (lowest score) to five (highest score). The demographics of respondents were analyzed by using descriptive statistics in forms of percentage and average. Inferential statistics in the forms of regression and correlation analysis were used to test the relationship between dependent and independent variables. The study's finding suggests that intrapreneurship can improve operation of businesses within the study area. Specifically, intrapreneurship improves product sales, increased volume and reduced cost of production. Thus, the study concluded that intrapreneurship will therefore, influence productivity of companies of North Central Nigeria. Management should encourage intrapreneurship and enable innovative employees, especially those within the marketing department to carry out research so as to bring about new ways of improving product sales. Teams of innovative employees within the production unit should be created and a time lag set for reengineering corporate thinking to thrive so as to increase the volume of production.*

**Key words:** *Intrapreneurship, manufacturing companies, North Central Nigeria, Productivity*

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### **1. Introduction**

Ayudurai and Sohail (2005) contend that if intrapreneurship can be used as a competitive tool, then its development & significance must be explored and highlighted. The increasing demand for faster product development, more features in smaller products, higher and uniform quality, stability and lower prices, demands for an intrapreneurial and flexible company with the right environment and systems that stimulate intrapreneurship in its employees (Christensen, 2004). Intrapreneurship works in a supportive environment, where employees have the opportunity to work independently, are given tremendous latitude and are expected to generate and implement new ideas to enhance firm performance. This requires adaptability, flexibility, speed, aggressiveness and innovativeness, all boiling down to one word, *intrapreneurship* (Christensen,

2004).

In modern business setup, corporate managers are unanimous in their desire to make their employees and organizations more intrapreneurial (Miller and Friesen, 1999), as high intrapreneurial intensity results in better performance (growth and profitability). Results include new products and services, improvement of old ones; new and improved processes and systems which improve efficiencies (Nwadu, 2000). Therefore identifying and fostering intrapreneurship within a firm is justified precisely because the intrapreneur will develop new products and ideas, which will ultimately improve the firm's performance.

In a large organization, challenges often occur that demand creativity and innovation, particularly in activities not directly related to the organization's main mission. The problem of competition has always plagued businesses. Losing the brightest people to entrepreneurship is escalating due to the rise in terms of status, publicity, and economic development and the rise of venture capital in financing new projects. The modern corporation is forced into seeking avenues for developing in-house entrepreneuring.

There is an increasing interest in doing one's own talents and doing it one's own terms (Covin and Slevin, 1991). Individuals who believe strongly in their own talents frequently desire to create something of their own. They want responsibility and have a strong need for individual expression and more freedom in their present organizational structure. When this freedom is not forthcoming, frustration can cause that individual to become less productive or even leave the organization to attain self-actualization elsewhere. This new search for meaning, and the impatience involved, has recently caused more discontent in structured organizations than ever before. When meaning is not provided within the organization, individuals often search for an institution that will provide it. Intrapreneurship is one method of stimulating, and then capitalizing on, individuals in an organization who think that something can be done differently and better (Mokaya, 2012). The obstacles to corporate entrepreneuring usually reflect the ineffectiveness of traditional management techniques as applied to new-venture development (Ayudurai and Sohail, 2005). Some of these challenges are stated as follows: Companies do not tie their visions to the realities of the market place; companies fail to keep the total organization flat and project teams small; on-innovative managers do not encourage several projects to proceed in parallel development; failure of learning and investigation of ideas to cut across traditional functional lines in the organization; and failure of an enterprise to use groups that function outside traditional lines of authority (Lindsey, 2001).

Internal factors that stimulate intrapreneurship in large corporations are rarely studied, rather, much attention is given to the daily operations of the mother organization itself. Higher budgets for Research and Development are unavailable in large organizations because most times, such firms want to cut down on their budget expenses. Researchers in management have not delved into studying effect of intrapreneurship on productivity of companies in North Central Nigeria, as compared to other sectors of management. Therefore, this constitutes a gap in knowledge that needs to be filled. This is the reason why this study in venturing into this aspect of management.

### **1.1. Objectives of the Study**

The main objective of this study is to analyze the effect of intrapreneurship on productivity of manufacturing companies in North Central Nigeria. Specifically, the study's objectives are to:

- (i) determine the effect of intrapreneurship on product sales of manufacturing companies in North Central Nigeria;
- (ii) analyze the effect of intrapreneurship on product volume of manufacturing companies in North Central Nigeria; and
- (iii) assess the effect of intrapreneurship on reduced costs of operations among manufacturing companies in North Central Nigeria

### **1.2. Research Questions**

- (i) What is the effect of intrapreneurship on product sales of manufacturing companies in North Central Nigeria?
- (ii) How important is intrapreneurship in improving increased product volume of manufacturing companies in North Central Nigeria; and
- (iii) In what way does intrapreneurship aid in reducing costs of operations among manufacturing companies in North Central Nigeria?

### **1.3. Statement of Hypotheses**

**H0<sub>1</sub>.** There is no significant relationship between intrapreneurship and product sales of manufacturing companies in North Central Nigeria.

**H0<sub>2</sub>.** There is no significant relationship between intrapreneurship and increased product volume of manufacturing companies in North Central Nigeria; and

**H0<sub>3</sub>.** There is no significant relationship between intrapreneurship and reduced costs of manufacturing companies in North Central Nigeria

## **2. Methodology**

### **2.1. Research Design**

The research used in this study is cross sectional because the observation was done at one point in time. Cross sectional research design involves short time observation of sample subjects done at different points in a short period of time (Oche, 2015). This entails the administration of questionnaires to respondents. The study is a correlational study because it involves the examination of the effect of independent variables on dependent variables. The study is also a demographic study because examined variables using tables, frequencies and percentages. Thus, this is a non-parametric study (using ordinal data) which implies that measurement of variables was subjected to likert-like scale measures.

### **2.2. Population of Study**

The chosen population for this study comprises of three (3) selected manufacturing companies – one each from Benue State (Consolidated Breweries Ltd), Nassarawa State (FeedTech Nigeria Ltd) and Plateau State (NASCO). The respondents' population consists of 1 General Manager, 1 Operations Manager, 1 Quality Control Manager, 26 Production Staff and 26 Marketing Staff from each of the selected corporate organization. These respondents was chosen for the study

because they are directly involved in the companies' products and services. They have also spent about 25 years and above in their various manufacturing companies. Thus, the total respondent population from the 3 companies was 165. However, 55 respondents were chosen from each of the three companies from the three states.

### 2.3. Sample Size

A sample size is a limited number of elements selected from the population which is representative of that population (Oche, 2015). That is a sample must be representative of the whole population. A representative sample size with known confidence and risk levels was selected. Since the selected population of the study is not too much; the whole population size was used as sample size which is 165 respondents.

### 2.4. Model Specification

In the first instance, multiple regression analysis was employed to determine the effect or outcome of the relationship between intrapreneurship dimension (entrepreneurial endeavors within the organizations) and corporate performance concept. The models for the study are represented below:

COMPANY PRODUCTIVITY =  $f$ (INTRAPRENEURSHIP) ..... **implicit model**

$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + e$  ..... (Explicit Traditional Model)

Also:

Product sales =  $\beta_0 + \beta_1CC + \beta_2CE + \beta_3RCT + e$ ..... **Model1**

Increased volume =  $\beta_0 + \beta_1CC + \beta_2CE + \beta_3RCT + e$ ..... **Model2**

Reduced costs =  $\beta_0 + \beta_1CC + \beta_2CE + \beta_3RCT + e$ ..... **Model3**

Where:

$\beta_0$  = Y intercept value of the dependent variable

e = the random error

$\beta_1, \beta_2, \beta_3$  = the regression coefficients of the independent variables:  $X_1, X_2, X_3$  (They are the parameter estimates) a prior expectations are  $\beta_1, \beta_2, \beta_3 > 0$ .

CC = corporate culture

CE = corporate entrepreneurship

RCT = reengineering corporate thinking

### 2.5. Methods of Data Analysis

The data for the study was collected, coded and analyzed using computer-based Statistical Package for Social Sciences (SPSS version 18 for Windows). The *demographics of respondents* was analyzed by using descriptive statistics in forms of percentage and average. The *three study objectives* were obtained by Ordinary Least Squares – OLS – (Multiple Regression Analysis). The basis of multiple regression and correlation is to assess the relationship between the

dependent variables and a set of independent or predictor variables; and to assess the effect of moderator variables on the relationship between the independent variables and the dependent variables. The Coefficient of Multiple Correlation (R) tells us the relationship between the dependent ( $Y_i$ ) and independent variables ( $X_i$ ). The value of R ranges between 0 to  $\pm 1$ . This range means that coefficient of correlation can never exceed 1. The degrees of R that will be used for this research are as follows: R = 0; no relationship, R = 0.3, 0.4; weak relationship, R = 0.5, 0.6; moderate relationship, R = 0.8, 0.9; strong relationship and R = 1; very strong relationship. Coefficient of Multiple Determination ( $R^2$ ) tells us what percentage of variations in the dependent variable that can be predicted or affected by variations in the independent variable. Decision Rule states that if Computed F Value  $\geq$  Tabulated F Value, the choice is to Reject  $H_0$  and accept  $H_1$  and vice versa. Statement of hypothesis for Multiple Regression Analysis also states that,  $H_0$ : x and y are not related ( $\beta = 0$ ) and  $H_1$ : x and y are directly or indirectly related ( $\beta \neq 0$ ).

### 3. Results and Discussion

#### 3.1. Survey Response

A total of 165 questionnaires were sent-out and the same 165 were retrieved; after careful scrutiny, one was rejected, because was defaced and improperly filled. A successful response rate of 99.39% was achieved as 164 of the questionnaires were considered acceptable. Majority of the respondents gave a positive remark; they commented that the study is an interesting project worth researching. Given the high percentage of acceptable number of questionnaires retrieved, this response rate was considered reasonably adequate.

#### 3.2. Presentation and Analysis of Data According to Research Questions

##### 3.2.1 Corporate Culture

##### *1) The company's corporate culture has a climate and reward system*

Majority of the respondents (42.7%) are neutral that the company's corporate culture has a climate and reward system. A certain percentage (18.3%) of the respondents agreed to this fact, while 15.4% disagreed. A lesser percentage (13.4%) of the respondents strongly agreed, while, an uninspiring percentage (9.8%) strongly disagreed.

##### *2) The company's culture favors conservative decision making*

Majority of the respondents (37.8%) are neutral that the company's culture favors conservative decision making. A certain percentage (20.7%) of the respondents agreed to this fact, while 18.3% disagreed. A lesser percentage (15.5%) of the respondents strongly agreed, while, an uninspiring percentage (7.3%) strongly disagreed.

##### *3) Risky decisions are often postponed until enough hard facts can be gathered or a consultant hired*

Majority of the respondents (34.1%) are neutral that risky decisions are often postponed until enough hard facts can be gathered or a consultant hired. A certain percentage (22.0%) of the respondents agreed to this fact, while 18.3% strongly agreed. A lesser percentage (13.4%) of the respondents strongly disagreed, while, an uninspiring percentage (12.2%) disagreed.

**4) *There are so many sigh-offs and approvals required for a large-scale project that no individual feels personally responsible***

Majority of the respondents (43.9%) are neutral that there are so many sigh-offs and approvals required for a large-scale project that no individual feels personally responsible. A certain percentage (18.3%) of the respondents disagreed to this fact, while 13.4% strongly disagreed. A lesser percentage (13.4%) of the respondents strongly disagreed, while, an uninspiring percentage (12.2%) agreed and strongly agreed.

### **3.2.2. Corporate Entrepreneurship**

**1). *Many manufacturing companies in North Central Nigeria are realized the need for corporate entrepreneuring***

Majority of the respondents (39.1%) are neutral that many companies in North Central Nigeria are realized the need for corporate entrepreneuring. A certain percentage (23.2%) of the respondents disagreed to this fact, while 19.5% strongly disagreed. A lesser percentage (17.1%) of the respondents agreed, while, an uninspiring percentage (11.0%) strongly agreed.

**2). *Companies try to infuse entrepreneurial thinking into large bureaucratic structures***

Majority of the respondents (34.1%) are neutral that companies try to infuse entrepreneurial thinking into large bureaucratic structures. A certain percentage (22.0%) of the respondents agreed to this fact, while 18.3% strongly agreed. A lesser percentage (13.4%) of the respondents strongly disagreed, while, an uninspiring percentage (12.2%) disagreed.

**3). *The modern corporation is faced into seeking avenues for developing in-house entrepreneuring***

Majority of the respondents (23.2%) strongly disagreed that the modern corporation is faced into seeking avenues for developing in-house entrepreneuring. A certain percentage (18.3%) of the respondents disagreed to this fact, while 15.9% are neutral. A lesser percentage (13.4%) of the respondents agreed, while, an uninspiring percentage (9.8%) strongly agreed.

**4). *Intrapreneurship also referred to as corporate revolution represents the desire to develop entrepreneurs within the corporate structure***

Majority of the respondents (37.8%) are strongly disagreed that intrapreneurship also referred to as corporate revolution represents the desire to develop entrepreneurs within the corporate structure. A certain percentage (22.0%) of the respondents disagreed to this fact, while 17.1% are neutral. A lesser percentage (15.9%) of the respondents agreed, while, an uninspiring percentage (7.3%) strongly agreed.

### **3.2.3 Reengineering corporate thinking**

**1). *To establish corporate entrepreneuring, companies need to provide the freedom and encouragement intrapreneurship require to develop their ideas***

Majority of the respondents (26.8%) disagreed that tasks improved performance significantly. A certain percentage (25.6%) of the respondents is neutral to this fact, while 19.5% strongly disagreed. A lesser percentage (17.1%) of the respondents agreed, while, an uninspiring percentage (11.0%) agreed.

**2). Reengineering corporate thinking is often a problem in enterprises because top managers do not believe entrepreneurial ideas can be nurtured and developed in their environment**

Majority of the respondents (26.8%) disagreed that tasks are very relevant in their work. A certain percentage (25.6%) of the respondents is neutral to this fact, while 19.5% strongly agreed. A lesser percentage (15.9%) of the respondents agreed, while, an uninspiring percentage (12.2%) strongly agreed.

**3). Doing old tasks more efficiently is not the answer to new challenges**

Majority of the respondents (25.6%) are neutral that doing old tasks more efficiently is not the answer to new challenges. A certain percentage (23.2%) of the respondents disagreed and another also strongly disagreed to this fact, while 14.6% agreed. A lesser percentage (13.4%) of the respondents strongly agreed.

**4). A new culture with new ideas is often developed in the company**

Majority of the respondents (37.8%) are strongly disagreed that a new culture with new ideas is often developed in the company. A certain percentage (22.0%) of the respondents disagreed to this fact, while 17.1% are neutral. A lesser percentage (15.9%) of the respondents agreed, while, an uninspiring percentage (7.3%) strongly agreed.

**Table 1:** Respondents Perception on Intrapreneurship (n=164)

Intrapreneurship	SA	A	N	D	SD	Total	Weighted Average
<b>Corporate culture</b>							
<i>The company's corporate culture has a climate and reward system</i>	22 (13.4)	30 (18.3)	70 (42.7)	26 (15.9)	16 (9.8)	164 (100)	2.13
<i>The company's culture favors conservative decision making</i>	26 (15.9)	34 (20.7)	62 (37.8)	30 (18.3)	12 (7.3)	164 (100)	2.30
<i>Risky decisions are often postponed until enough hard facts can be gathered or a consultant hired</i>	30 (18.3)	36 (22.0)	56 (34.1)	20 (12.2)	22 (13.4)	164 (100)	2.30
<i>There are so many sigh-offs and approvals required for a large-scale project that no individual feels personally responsible</i>	20 (12.2)	20 (12.2)	72 (43.9)	30 (18.3)	22 (13.4)	164 (100)	2.4
<b>Corporate entrepreneurship</b>							
<i>Many manufacturing companies in North Central Nigeria are realized the need for corporate entrepreneuring</i>	18 (11.0)	28 (17.1)	64 (39.0)	38 (23.2)	16 (9.5)	164 (100)	1.99
<i>Companies try to infuse entrepreneurial thinking into large bureaucratic structures</i>	30 (18.3)	36 (22.0)	56 (34.1)	20 (12.2)	22 (13.4)	164 (100)	2.30

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<i>The modern corporation is faced into seeking avenues for developing in-house entrepreneuring</i>	16 (9.8)	22 (13.4)	26 (15.9)	30 (18.3)	70 (23.2)	164 (100)	2.00
<i>Intrapreneurship also referred to as corporate revolution represents the desire to develop entrepreneurs within the corporate structure</i>	12 (7.3)	26 (15.9)	28 (17.1)	36 (22.0)	62 (37.8)	164 (100)	1.96
<b>Reengineering corporate thinking</b>							
<i>To establish corporate entrepreneuring, companies need to provide the freedom and encouragement intrapreneurship require to develop their ideas</i>	28 (17.1)	18 (11.0)	42 (25.6)	44 (26.8)	32 (19.5)	164 (100)	1.99
<i>Reengineering corporate thinking is often a problem in enterprises because top managers do not believe entrepreneurial ideas can be nurtured and developed in their environment</i>	20 (12.2)	26 (15.9)	42 (25.6)	44 (26.8)	32 (19.5)	164 (100)	1.97
<i>Doing old tasks more efficiently is not the answer to new challenges</i>	22 (13.4)	24 (14.6)	42 (25.6)	38 (23.2)	38 (23.2)	164 (100)	1.96
<i>A new culture with new ideas is often developed in the company</i>	12 (7.3)	26 (15.9)	28 (17.1)	36 (22.0)	62 (37.8)	164 (100)	1.96

**Note:** Strongly Agree = SA, Agree = A, Neutral = N, Disagree = D, Strongly Disagree = SD, values in parenthesis are in percentages

**Source:** Field Survey, 2015

### 3.2.4. Productivity of Companies

#### a. Product sales

**1) Product service has improved drastically due to intrapreneurship of employees**  
Majority of the respondents (29.3%) are neutral that product service has improved drastically due to intrapreneurship of employees. A certain percentage (23.2%) of the respondents disagreed to this fact, while 19.5% strongly disagreed. A lesser percentage (17.1%) of the respondents agreed, while, an uninspiring percentage (11.0%) strongly agreed.

**2) Service delivery to customers has deviated from the old methods**  
Majority of the respondents (37.8%) are neutral that service delivery to customers has deviated from the old methods. A certain percentage (19.5%) of the respondents strongly disagreed to this fact, while 18.3% disagreed. A lesser percentage (11.0%) of the respondents agreed, while, an uninspiring percentage (6.1%) strongly agreed.



**3) Product differentiation is largely due to intrapreneurship venturing**

Majority of the respondents (30.5%) are neutral that product differentiation is largely due to intrapreneurship venturing. A certain percentage (26.8%) of the respondents disagreed to this fact, while 17.1% strongly agreed. A lesser percentage (14.6%) of the respondents strongly disagreed, while, an uninspiring percentage (11.0%) agreed.

**4) Revenue from products has increased compared to past years due to efforts from intrapreneurship**

Majority of the respondents (25.6%) are neutral that revenue from products has increased compared to past years due to efforts from intrapreneurship. A certain percentage (23.2%) of the respondents disagreed and strongly disagreed to this fact, while 14.6% agreed. A lesser percentage (13.4%) of the respondents strongly agreed.

**b. Increased volume**

**1) Volume of production has increased due to demand by customers**

Majority of the respondents (42.7%) are neutral that volume of production has increased due to demand by customers. A certain percentage (18.3%) of the respondents agreed to this fact, while 15.4% disagreed. A lesser percentage (13.4%) of the respondents strongly agreed, while, an uninspiring percentage (9.8%) strongly disagreed.

**2) Increase in volume of production is due to Intrapreneurial venturing by staff**

Majority of the respondents (37.8%) are neutral that increase in volume of production is due to Intrapreneurial venturing by staff. A certain percentage (20.7%) of the respondents agreed to this fact, while 18.3% disagreed. A lesser percentage (15.5%) of the respondents strongly agreed, while, an uninspiring percentage (7.3%) strongly disagreed.

**3) Customers demand more of the company's products as compared to the demand recorded years ago**

Majority of the respondents (34.1%) are neutral that customers demand more of the company's products as compared to the demand recorded years ago. A certain percentage (22.0%) of the respondents agreed to this fact, while 18.3% strongly agreed. A lesser percentage (13.4%) of the respondents strongly disagreed, while, an uninspiring percentage (12.2%) disagreed.

**4) Increased in demand for the company's products is due largely to changes in packaging, contents and advertisement efforts of staff**

Majority of the respondents (43.9%) are neutral that increased in demand for the company's products is due largely to changes in packaging, contents and advertisement efforts of staff. A certain percentage (18.3%) of the respondents disagreed to this fact, while 13.4% strongly disagreed. A lesser percentage (13.4%) of the respondents strongly disagreed, while, an uninspiring percentage (12.2%) agreed and strongly agreed.

**c. Corporate Entrepreneurship**

**1). Costs of production and operation is less due to experimentation with various types of methods and processes**

Majority of the respondents (39.1%) are neutral that costs of production and operation is less due

to experimentation with various types of methods and processes. A certain percentage (23.2%) of the respondents disagreed to this fact, while 19.5% strongly disagreed. A lesser percentage (17.1%) of the respondents agreed, while, an uninspiring percentage (11.0%) strongly agreed.

**2). unit cost of producing a unit of the company’s products comparatively outweighs that of competitors**

Majority of the respondents (34.1%) are neutral unit costs of producing a unit of the company’s products comparatively outweighs that of competitors. A certain percentage (22.0%) of the respondents agreed to this fact, while 18.3% strongly agreed. A lesser percentage (13.4%) of the respondents strongly disagreed, while, an uninspiring percentage (12.2%) disagreed.

**3). Alternatives in the form of resources, processes and methods are available if the present cost increases**

Majority of the respondents (23.2%) strongly disagreed that alternatives in the form of resources, processes and methods are available if the present cost increases. A certain percentage (18.3%) of the respondents disagreed to this fact, while 15.9% are neutral. A lesser percentage (13.4%) of the respondents agreed, while, an uninspiring percentage (9.8%) strongly agreed.

**4). There is reduced cost in managing, training and recruitment of staff because employee turnover has reduced**

Majority of the respondents (37.8%) are strongly disagreed that there is reduced cost in managing, training and recruitment of staff because employee turnover has reduced. A certain percentage (22.0%) of the respondents disagreed to this fact, while 17.1% are neutral. A lesser percentage (15.9%) of the respondents agreed, while, an uninspiring percentage (7.3%) strongly agreed.

**Table 2:** Respondents Perception on Productivity of Companies (n=164)

Productivity of Companies	SA	A	N	D	SD	Total	Weighted Average
<b>Product sales</b>							
Product service has improved drastically due to intrapreneurship of employees	18 (11.0)	28 (17.1)	48 (29.3)	38 (23.2)	32 (19.5)	164 (100)	1.65
Service delivery to customers has deviated from the old methods	10 (6.1)	18 (11.0)	74 (37.8)	30 (18.3)	32 (19.5)	164 (100)	2.10
Product differentiation is largely due to intrapreneurship venturing	28 (17.1)	18 (11.0)	50 (30.5)	44 (26.8)	24 (14.6)	164 (100)	2.08
Revenue from products has increased compared to past years due to efforts from intrapreneurship	22 (13.4)	24 (14.6)	42 (25.6)	38 (23.2)	38 (23.2)	164 (100)	1.96
<b>Increased volume</b>							

Volume of production has increased due to demand by customers	22 (13.4)	30 (18.3)	70 (42.7)	26 (15.9)	16 (9.8)	164 (100)	2.13
Increase in volume of production is due to Intrapreneurial venturing by staff	26 (15.9)	34 (20.7)	62 (37.8)	30 (18.3)	12 (7.3)	164 (100)	2.30
Customers demand more of the company's products as compared to the demand recorded years ago	30 (18.3)	36 (22.0)	56 (34.1)	20 (12.2)	22 (13.4)	164 (100)	2.30
Increased in demand for the company's products is due largely to changes in packaging, contents and advertisement efforts of staff	20 (12.2)	20 (12.2)	72 (43.9)	30 (18.3)	22 (13.4)	164 (100)	2.4

**Reduced costs**

Costs of production and operation is less due to experimentation with various types of methods and processes	18 (11.0)	28 (17.1)	64 (39.0)	38 (23.2)	16 (9.5)	164 (100)	1.99
Unit costs of producing a unit of the company's products comparatively outweighs that of competitors	30 (18.3)	36 (22.0)	56 (34.1)	20 (12.2)	22 (13.4)	164 (100)	2.30
Alternatives in the form of resources, processes and methods are available if the present cost increases	16 (9.8)	22 (13.4)	26 (15.9)	30 (18.3)	70 (23.2)	164 (100)	2.00
There is reduced cost in managing, training and recruitment of staff because employee turnover has reduced	12 (7.3)	26 (15.9)	28 (17.1)	36 (22.0)	62 (37.8)	164 (100)	1.96

*Note: Strongly Agree = SA, Agree = A, Neutral = N, Disagree = D, Strongly Disagree = SD*

*Source: Field Survey, 2015*

**3.3. Results of Hypotheses Testing**

**3.3.1. Hypothesis one**

The t calculated values: 3.541, 2.715 and 2.578 for the three intrapreneurship variables all showed significant values, because they are greater than the t-tabulated value (2.000) as indicated in Table 3. The F calculated value is 4.382, which is greater than the F tabulated value indicating significance between intrapreneurship variables and product sales. The null hypothesis is rejected while the alternative hypothesis (**H1<sub>1</sub>**) is accepted, which states that, “*there is significant relationship between intrapreneurship and product sales of manufacturing companies in North Central Nigeria*”. However, according to our model in chapter three, the outcome of the model designed for hypothesis one is represented below:

$$\text{Product sales} = 0.129 + 0.239\text{CC} + 0.195\text{CE} + 0.148\text{RCT} + e \dots\dots\dots \text{(Equation 1)}$$

**Table 3:** Effect of Intrapreneurship on Product Sales (n=164)

Model 1	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	0.129	0.246		0.522	0.603
<b>Corporate culture</b>	0.239	0.067	0.278	3.541**	0.000
<b>Corporate Entrepreneurship</b>	0.195	0.076	0.207	2.715*	0.012
<b>Reengineering Corporate Thinking</b>	0.148	0.045	0.183	2.578*	0.000

a. Dependent Variable: Product Sales, \*, \*\* Correlation is significant at the 0.05 level & 0.01 level (2-tailed), F Calculated value = 4.382, R = 0.831, R<sup>2</sup> = 0.691.

**Source:** Computed with the aid of computer based software SPSS Version 21 for Windows

**3.3.2. Hypothesis two**

The t calculated values: (2.854, 2.251 and 4.711) for the three intrapreneurship variables all showed significant values, because they are greater than the t tabulated value (2.000) as indicated in Table 4. The F calculated value of 3.315 is greater than the F tabulated value and shows significance between the output and input variables. The null hypothesis is rejected and the alternative hypothesis (H<sub>12</sub>) accepted, which states that, “*there is significant relationship between intrapreneurship and increased product volume of manufacturing companies in North Central Nigeria*”. However, according to our model in chapter three, the outcome of the model designed for hypothesis two is represented below:

$$\text{Increased volume} = 0.336 + 0.201CC + 0.178CE + 0.385RCT + e \dots\dots\dots \text{(Equation 2)}$$

**Table 4:** Effect of Intrapreneurship on Increased Product Volume (n=164)

Model 2	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.

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(Constant)	0.336	0.258		1.306	0.195
<b>Corporate culture</b>	0.201	0.071	0.246	2.854*	0.005
<b>Corporate Entrepreneurship</b>	0.178	0.079	0.198	2.251*	0.027
<b>Reengineering Corporate Thinking</b>	0.385	0.082	0.426	4.711**	0.000

a. Dependent Variable: Increased Product Volume, \*, \*\* Correlation is significant at the 0.05 level & 0.01 level (2-tailed), F Calculated value = 3.315 at 0.05, R = 0.794, R<sup>2</sup> = 0.630.

**Source:** Computed with the aid of computer based software SPSS Version 21 for Windows

**3.3.3. Hypothesis three**

Only the t calculated values: 5.041 and 3.475 for corporate culture and corporate entrepreneurship from the three intrapreneurship variables, showed significant values, because they are greater than the t-tabulated value (2.000) (see Table 5). The F calculated value is 4.258, which is greater than the F tabulated value indicating significance between intrapreneurship and reduced costs variables. The null hypothesis is rejected while the alternative hypothesis (**H1<sub>3</sub>**) is accepted, which states that, “*there is significant relationship between intrapreneurship and reduced costs of manufacturing companies in North Central Nigeria*”. However, according to our model in chapter three, the outcome of the model designed for hypothesis three is represented below:

$$\text{Reduced costs} = 2.539 + 0.604\text{CC} + 0.499\text{CE} + 0.064\text{RCT} + e \dots\dots\dots \text{(Equation 3)}$$

**Table 5:** Effect of Intrapreneurship on Reduced Costs (n=164)

Model 3	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	2.539	0.331		7.674**	0.000
<b>Corporate culture</b>	0.604	0.120	0.442	5.041**	0.000
<b>Corporate Entrepreneurship</b>	0.499	0.144	0.358	3.475**	0.001

<b>Reengineering Corporate Thinking</b>	0.064	0.231	0.044	0.279	0.781
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a. Dependent Variable: Cost Reduction, \*\*Correlation is significant at the 0.01 level (2-tailed), F Calculated value = 4.258 at 0.05, R = 0.790, R<sup>2</sup> = 0.624.

**Source:** Computed with the aid of computer based software SPSS Version 21 for Windows

### 3.4. Discussion of Findings

From model 1, the coefficient of correlation (R) is 0.831; meaning that there is a strong relationship between the variables of intrapreneurship and product sales. The coefficient of determination (R<sup>2</sup>) on the other hand is 0.691 indicating that 69% of products sales were caused by variation of corporate culture, corporate entrepreneurship and reengineering corporate thinking. Most importantly, the study found out that if intrapreneurship variable items of model 1 (i.e. hypothesis 1) are absent from the equation, the product sales of the studied organizations will still increase product sales by 0.129 units which needs to be improved upon. However, for hypothesis one, corporate culture will improve products sales by 0.239, corporate entrepreneurship by 0.195, and reengineering corporate thinking by 0.148. This indicates from our findings that intrapreneurship can improve product sales of the study area; but if absent at all, the studied companies, will appreciably improve product sales from other variables outside the intrapreneurship dimension. Thus, we conclude that intrapreneurship will therefore, influence products sales of manufacturing companies of North Central Nigeria. This is in accordance with psychological ownership theory. According to Pierce *at al.* (2001), psychological ownership promotes self-initiated, evolutionary and additive change, but it produces resistance to imposed, revolutionary and subtractive change. Although we have found no cross references between the literatures of intrapreneurship and psychological ownership, these two phenomena seem related.

The typical corporate culture has a climate and reward system that favor conservative decision making; risky decision are often postponed until enough hard facts can be gathered or a consultant hired to “illuminate the unknown;” frequently, there are so many sigh-offs and approvals required for a large-scale project that no individual feels personally responsible (Martin and Terblanche, 2003).

From model 2, the coefficient of correlation (R) is 0.794; meaning that there is a strong relationship between the variables of intrapreneurship and increased product volume. The coefficient of determination (R<sup>2</sup>) on the other hand is 0.630 indicating that 63% of increased product volume was caused by variation of corporate culture, corporate entrepreneurship and reengineering corporate thinking. Most importantly, the study found out that if intrapreneurship variable items of model 2 (i.e. hypothesis 2) are absent from the equation, the product volume of the studied organizations will still increase by 0.336 units which needs to be improved upon. However, for hypothesis two, corporate culture will improve product volume by 0.201, corporate entrepreneurship by 0.178, and reengineering corporate thinking by 0.385. This indicates from our findings that intrapreneurship can improve product volume of the study area; but if absent at all, the studied manufacturing companies, will appreciably improve product volume from other variables outside the intrapreneurship dimension. Thus, we conclude that intrapreneurship will therefore, increase product volume of manufacturing companies of North Central Nigeria. This is in accordance to the theory of supervisory span of control. Gaglio and Katz (2001) identifies

supervisory span of control as a linking pin between management and operative employees. There is a positive relationship between span of control and delegation. A broad span of control forces managers to allow their subordinates to enjoy the full benefits of the delegated responsibility. It is because of this that, Ottih (2006) believes that tall organizational structures improve management supervisory efficiency as they entail a narrow span of control. Flattening the organization allows for intrapreneurship and would largely increase the volume of products from companies.

Many manufacturing companies today are realizing the need for corporate entrepreneuring. Articles in popular business magazines are reporting the infusion of entrepreneurial thinking into large bureaucratic structures; in fact, in many books has devoted entire sections to innovation in the corporation (Sharma and Chrisma, 1999). The modern corporation, then, is faced into seeking avenues for developing in-house entrepreneuring. To do otherwise is to wait for stagnation, loss of personnel, and decline. This “corporate revolution” represents and appreciation for and a desire to develop entrepreneurs within the corporate structure.

From model 3, the coefficient of correlation (R) is 0.790; meaning that there is a strong relationship between the variables of intrapreneurship and reduced costs. The coefficient of determination ( $R^2$ ) on the other hand is 0.624 indicating that 62% of reduced costs were caused by variation of corporate culture, corporate entrepreneurship and reengineering corporate thinking. Most importantly, the study found out that if intrapreneurship variable items of model 3 (i.e. hypothesis 3) are absent from the equation, the reduced costs of the studied organizations will still increase reduced costs by 2.539 units which implies that companies in the study area pay more attention to reduced costs of operations. However, for hypothesis three, corporate culture improved products sales by 0.604, corporate entrepreneurship by 0.499, and reengineering corporate thinking by 0.064. This indicates from our findings that intrapreneurship can improve reduced costs of the study area; but if absent at all, the studied companies, will appreciably reduce costs from other variables outside the intrapreneurship dimension. Thus, we conclude that intrapreneurship will therefore, influence reduced costs of companies of North Central Nigeria. This is in accordance with the theory of organizational citizenship behavior.

Organizational citizenship behavior (OCB) is a special type of work behaviour defined as individual behaviours that are beneficial to the organization and are discretionary, not directly or explicitly recognized by the formal reward system. These behaviours are rather a matter of personal choice, such that their omission is not generally understood as punishable (Organ, 1988). OCB is composed mainly of two factors: compliance and altruism (Sathe, 2003). Like proactive and innovative behaviour, OCB goes beyond direct role requirements and can be seen to contribute indirectly to organizational effectiveness. OCB yet has some distinguishing features which actually exclude it as an element of intrapreneurship. As mentioned, two forms of OCB are compliance and altruism.

To establish corporate entrepreneuring, companies need to provide the freedom and encouragement intrapreneurs require to develop their ideas (Covin, and Slevin 1991; Lumsarkin, Dess and Covin, 2004). This is often a problem in enterprises because many top managers do not believe entrepreneurial ideas can be nurtured and developed in their environment. Doing old tasks more efficiently is not the answer to new challenges; a new culture with new values has to

be developed (Sathe, 1985). Innovation is the specific tool of the entrepreneur, therefore, corporations must understand and develop innovation as the key element in their strategy.

#### **4. Conclusion**

The main objective of this study was to analyze the effect of intrapreneurship on productivity of manufacturing companies in North Central Nigeria. The study is a correlational study because it involves the examination of the effect of independent variables on dependent variables. The study is also a demographic study because examined variables using tables, frequencies and percentages. Since the selected population of the study is not too much; the whole population size was used as sample size which is 164 respondents. The relationship variables of independents and dependent items was measured using a five-point Likert-like scale ranging from one (lowest score) to five (highest score). The demographics of respondents were analyzed by using descriptive statistics in forms of percentage and average. The three study objectives were examined using multiple regression analysis. For hypothesis one, corporate culture improved products sales by 0.239, corporate entrepreneurship by 0.195, and reengineering corporate thinking by 0.148. This indicates from our findings that intrapreneurship can improve product sales of the study area. For hypothesis two, corporate culture improved product volume by 0.201, corporate entrepreneurship by 0.178, and reengineering corporate thinking by 0.385. This indicates from our findings that intrapreneurship can improve product volume of the study area. For hypothesis three, corporate culture improved product sales by 0.604, corporate entrepreneurship by 0.499, and reengineering corporate thinking by 0.064. This indicates from our findings that intrapreneurship can improve reduced costs of the study area. Thus, the study conclude that intrapreneurship will therefore, influence productivity of companies of North Central Nigeria.

#### **6. Recommendations**

From our conclusion, the study came to the following recommendations for stakeholders:

- i. Management should encourage intrapreneurship and enable innovative employees, especially those within the marketing department to carry out research so as to bring about new ways of improving product sales.
- ii. Teams of innovative employees within the production unit should be created and a time lag set for reengineering corporate thinking to thrive so as to increase the volume of production.
- iii. The cost of operation within the studied manufacturing companies can be further reduced if new ideas and latest innovative techniques are championed by innovative employees within the company.

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