

# Business Process Reengineering and Its Impact on the Performance of Manufacturing Firms in Nigeria: An Empirical Evaluation

Sunday Alewo Omale (Ph.D)<sup>1</sup> Christian Oriaku<sup>2</sup>

1.Department of Business Administration, Veritas University Abuja, FCT-Nigeria

2.Department of Business Administration, Veritas University Abuja (The Catholic University of Nigeria)

## Abstract

The paper posits that Business Process Reengineering is the radical redesign and rethinking of processes of business to achieve critical improvement desired in quality and performance. Business process reengineering advocates that firms go back to the foundation and reexamine their very roots. It focuses on the processes and not on people or tasks and does not believe in little success; rather it aims at total reinvention of the entire system. Relevant data were reviewed using secondary method of data collection while questionnaire was design for Top and Middle level Management Staff of the manufacturing firms. The data was subjected to statistical analysis and the result clearly showed that Business Process Reengineering impact positively on the performance of Manufacturing Firms in Nigeria as BPR help in eliminating non essential activities and as well enhances the quality of product produce in manufacturing firms in Nigeria. Firms' vital point is on well-built and motivated leadership for the benefit of the entire organizational system. Current realities, such as changes, competition and the desire of customers, point to the direction that the developing organizations may never get to the place of development if they attempt to follow old ways of doing business. This paper argued that there is need now like never before, to re-examine the path taking so far by developing firms toward improving the performance of their business.

**Keywords:** Business, Process, Reengineering, Business Reengineering, Firm Performance

## 1. Introduction

In today's highly acquaintance based competitive market place or environment were the world is constantly driving by competition, clients, as well as changes, firms are on the match to find solutions for their business short-coming in other to have a competitive advantage over other firms. Business reengineering process deals with radical redesign of core business process to achieve dramatic improvements in performance, productivity and quality of product manufactured to minimize the effect of consumer decision, competitors and changes in the environment. Reengineering business process is the rethinking and redesign of business processes radically to achieve dramatic improvements in quality, cost, service and performance in general.

Peter Carter (2005), maintain that business process reengineering is the main way in which organizations become more efficient and modernize. According to Carter, business process reengineering transforms an organization in ways that directly affect performance.

Silvestro and Westley (2000) believe that a business process is a series of steps designed to produce a product or a service. It includes all the activities that deliver particular result for a given customer. In reengineering business process, companies begin with plain sheet of paper and rethink existing processes in order to deliver more value to the customer.

Firms typically adopt a new value system that places increased emphasis on customers' needs and eliminate unproductive activities by redesigning functional organizations into cross-functional teams and the use of ICT to improve information dissemination and decision making. It is against this background that the researchers seek to examine the extent to which performance of a companies can be improve through effective business process reengineering with the view of recommending ways by which the current practice can be advance.

## 2. Objectives of the Study

The aim of this research is to:

1. Ascertain whether business process reengineering impact positively on the performance of manufacturing firms in Nigeria.
2. Determine the extent to which business process reengineering enhances the quality of product produced.

## 3. Research Questions

The research questions are presented below:

1. To what extent does business process reengineering impact positively on the performance of manufacturing firms in Nigeria?

2. Does business process reengineering enhance the quality of product produced?

#### 4. Research Hypotheses

The following Hypotheses serve the foundation for this study.

1. Business Process Reengineering impact positively on the performance of Manufacturing Firms in Nigeria.
2. Business Process Reengineering enhances the quality of product produced.

#### 5. Conceptual Framework of Business Process Reengineering

In our personal view, Business Process Reengineering usually abbreviated as (BPR) is the breaking away constantly from non profitable ways of doing business and collaboration and effect a radical reconsidering of change processes to achieve a dramatic improvements in production, marketing, finance, quality and services, by the use of information and communication technology to enhance desired objectives. BPR is the act of reforming or re-making of all business processes, management systems, organizational structure, and standing norms or beliefs of the organization.

Martinson and Hempel (1998) maintain that the concept of business process reengineering (BPR) is to rethink and break down existing business processes. This allows a company to reduce costs and improve productivity through newer, more efficient processes. It is important to remember however, that though there are instances where this is necessary, business process reengineering is not without its disadvantages. This makes it vital to weigh your decision carefully. One of the most obvious adverse effects of a company's decision to reengineer is lowered employee morale. Most people show a discrepancy to change and do not manage to adapt to it easily. This aspect needs to be kept in mind when trying to make the decision to go through with the activity.

In a related development, Michael Hammer and James Champy published a book in 1990, "Reengineering the Corporation", that stated that in some cases, radical redesign and reorganization within a company were the only way to reduce costs and improve quality of service. To this end, they said, information technology was the key element for allowing this to happen.

Hammer and Champy said that most large companies made (now invalid) assumptions about their goals, people and technology that were impacting the workflow. They suggested seven principles that could be used to reengineer and help streamline workflows, thus improving quality, time management and cost.

Essentially, for a successful BPR effort, it is important to look at all the tasks that are working to achieve the same goal. This exercise can then allow several jobs to be combined into one. In addition, parallel processes leading to the same outcome should be connected within the process rather than just combining results at the end. Also, it is important to look at all available resources and place the actual work where it makes the most sense.

In view of the above, Hammer and Champy (1990) suggested the following seven principles in their book. *Organize around outcomes not task; identify all the processes in an organization and prioritize them in order of redesign urgency; Integrate information processing work into the real work that produces the information; Treat geographically dispersed resources as though they were centralized; Link parallel activities in the workflow instead of just integrating their result; put the decision point where is performed and build control into the process and capture information once and at the source.*

To make the process most efficient, the power to make decisions regarding it should be given to the people performing the process and any unnecessary control systems should be eliminated. Instead of having extra processes to record information relating to the process, a resource within the process should provide all necessary data to increase accuracy and reduce redundancy.

Business Process Re-engineering (BPR) is a concept about process improvement in a dramatically approach (O'Neill, P. & Sohal, A.S. (1999). BPR is concerned with making significant, radical changes to a Company based on the business process. It has been defined by Hammer and Champy, 1993 (in Jones, 1997) as the fundamental rethinking and radical redesign of processes to achieve dramatic improvements in critical contemporary measures of performance, such as: cost, quality, service, and speed. There are still many other authors with variations on these terms business process reengineering.

Process is a structured, measured set of activities designed to produce a specified output for a particular customer or market. It implies a strong emphasis on how work is done within an organization (Davenport 1993). Each process is composed of related steps or activities that use people, information, and other resources to create value for customers.

The term "Business Process Reengineering" has, over the past couple of years, gained growing circulation, thus, many find themselves faced with the prospect of having to study, plan, implement and successfully conduct a real Business Process Reengineering endeavor, whatever that might entail within their own business organization.

## 6. How to Make Business Process Reengineering Work

Hall, et al. (1993), identifies business process reengineering as a dramatic change initiative that contains five steps. These are:

- i. Refocus company values on customer needs
- ii. Redesign core processes using information technology to enable improvements
- iii. Reorganize a business into cross-functional teams with end-to-end responsibility for a process
- iv. Rethink basic organizational and people issue
- v. Improve business processes across the organization.

## 7. Merits of Business Process Reengineering

Companies use business process reengineering to improve performance substantially on key processes that impact customers. Specifically, the followings are some of the merits of business process reengineering.

- a. Business process reengineering is the key to transferring how people work. What appear to be minor changes in processes can have dramatic effects on cash flow, service delivery and customer satisfaction.
- b. Improve quality. Business process reengineering improves quality by reducing the fragmentation of work and establishing clear ownership of the processes. Workers gain responsibility for their output and can measure their performance based on prompt feedback.
- c. Reduce cost and cycle time. Business process reengineering reduces costs and cycle times by eliminating unproductive activities and the employees who perform them. Reorganization by teams decreases the need for management layers, accelerates information flows and eliminates the errors and rework caused by multiple handoffs.
- d. There is that real desire to straightforward the way of work by objectively assessing all activities and tasks and eliminating any that add less value or relevance.
- e. Customer needs are made the priority of the company and serve as business practices.
- f. Reallocation of jobs and processes could be combined into fewer and natural order that can be executed simultaneously and by the least possible number of employees.
- g. Jobs and processes become flexible so as to be executed according to the needs of each case, company's and customer's need's (hybrid centralized/decentralized operations).

## 8. Demerits of Business Process Reengineering

It is imperative to note and understand that BPR is not without shortcoming. The following are some of demerits.

- a. It is seen as a way to make minor adjustments on existing processes that is considered perfect.
- b. It is seen as a one-time cost cutting exercise. In reality, cost reductions are often a handy by product of the activity but not the primary concern. It is also not a one-time activity but an ongoing change in mindset.
- c. Bringing people aboard is a difficult task and many BPR initiatives never take off because of lack of support by the subordinate.
- d. There is less effort to redecorate and more to mechanize.
- e. One department is prioritized at the expense of the process. There needs to be openness towards studying every single process in detail and a willingness to change whatever is needed to achieve overall efficiency.

## 9. How to Implement Business Process Reengineering in your Business

Chan, S.L. & Choi, C.F. (1997) state that, following steps can help BPR realize its core principles of customer satisfaction, reduced costs of business and increased competitiveness.

- i. Business vision and objectives  
Any BPR activity needs to begin with clearly defined and measurable objectives. Whether the goal is reducing costs, improving quality of product, or increasing efficiency, the framework for what needs to be achieved has to be decided upon at the onset, in line with the company's vision and mission.
- ii. Identification and slacking processes  
Once a clear goal is in mind, all processes need to be studied and those seen as 'slacking' or that can be improved need to be identified. Among these, those processes with direct impact on the company's output or those that clash with the company's mission become part of the 'red' list. This clear identification makes the difference between BPR success and failure.
- iii. Understanding and measure the red process  
With a list of slacking processes in hand, it is imperative to identify how they were identified. Such as: Are they taking too much time to complete? Is the quality of the outcome being compromised? Whatever the issue is, each process must be judged objectively either against

- iv. industry standards or ethically obtained competitor best practices.
- iv. Information system and technology capabilities  
 An efficient and relevant IT system is an essential BPR enabler. Without such a system, it is not possible to keep a check on all factors affecting the change. Before setting out on a radical BPR activity, it is vital to set in place information systems that can deal with the magnitude of the change.
- v. Design, Build and test the new prototype  
 Before any new product is launched, a prototype is tested out. A failure at a testing stage should never be implemented at a larger scale. BPR projects fail more often than not for a variety of reasons but a basic reason is the inability to identify and accept any limitations at the testing stage. Among other factors, both the management's attitude towards the new way of work and the employees' outlook towards the change should be carefully assessed.
- iv. Adapting the organization

Managing change brought about by BPR activities is the final effort towards a successful project. Providing updated documentation, organizational structures, governance models as well as updated charts of authority and responsibility leave little room for confusion and allow a smooth transition into the new way of work.

Business process reengineering is a radical change activity that cannot be repeated if it goes wrong the first time. It is often a high risk of activity that involves monetary investment and a risk of de-motivated employees.

### 10. Research Methodology

The researchers adopted a survey research design for this study. A survey is a very valuable tool for appraising opinions and trends; it can be very accurate and it allows you to be selective about whom you ask questions and you can explain anything that they do not understand. The data through which responses were given in the questionnaire was analyzed and interpreted with the use of percentages and T test statistical techniques.

### 11. Data Presentation

Data is presented in tabular form and briefly discussed accordingly. A well-structured questionnaire was designed and distributed to the sampled staff of the selected Manufacturing firms in the North Central Zone of Nigeria.

For the purpose of testing the hypotheses, the T-test statistical technique was employed. Three hundred and forty eight (348) questionnaires were prepared and distributed but only three hundred and twenty three (323) were correctly filled and returned. Therefore, the researchers based their analysis on the number that was correctly filled and return. Table 4.1 shows the questionnaire distribution and collection schedule.

**Table 1 Questionnaire Distribution and Collection Schedule**

No Distributed	No returned	No rejected	No accepted	No not return
348	332	9	323	16
<b>100</b>	<b>95.4%</b>	<b>2.7%</b>	<b>97.2%</b>	<b>4.5%</b>

Source: Researchers Field Survey, 2016

Table 1 indicates that 348 questionnaire representing 100% were prepared and distributed, 332 (Representing 95. 4%) out of 348 were filled and returned, 9 representing 2.7 percent was not properly filled, while 16 questionnaire representing 4.5% were not returned at all. The researchers based their analysis on the number that was correctly filled and returned which are 323.

### 12. Analysis of Data or Responses Rate

**Table 2 Business Process Reengineering impact positively on the performance of Manufacturing Firms in Nigeria**

Option	Responses	Percentages
Strongly Agreed	112	34.6
Agreed	109	33.7
Strongly Disagreed	53	16.4
Disagreed	41	12.6
No idea	8	2.5
<b>Total</b>	<b>323</b>	<b>99.8</b>

Source: Researchers Field Survey, 2016

Based on the figures and percentages contained in table 4.2, the researchers are made to understand that the highest number of respondents 112 with the highest percentage 34.6% strongly agreed that Business Process Reengineering impact positively on the performance of Manufacturing Firms in Nigeria, 109 respondents representing 33.7% agreed with the statement, 53 respondents representing 16.4% actually strongly disagree, 41

respondents representing 12.6% disagree entirely while, 2.5% of the respondents claim not to have knowledge of the statement.

**Table 3** Business Process Reengineering enhances the quality of product created

Option	Responses	Percentages
Strongly Agreed	136	42.1
Agreed	114	35.3
Strongly Disagreed	49	15.2
Disagreed	21	6.5
No idea	3	0.9
<b>Total</b>	<b>323</b>	<b>100</b>

**Source:** Researchers Field Survey, 2016

Table 3 indicate that 42.1% and 35.3% of the respondents strongly agreed and agreed with the statement respectively, 49 respondents representing 15.2% strongly disagreed while 21 of the respondents representing 6.5% disagreed entirely. No answer was provided from 3 respondents.

### 13. Testing of Hypothesis (T-Test)

Tables 4.2 and 4.3 respectively were used to achieve this test; T test was employed.

#### 13.1 Testing of Hypotheses

It is important to find out whether the differences in judgment are noteworthy enough to draw conclusion in testing the Hypotheses. To determine the degree of freedom, the researchers use the formula:

$$(n-1) = (10-1) = 9. \text{ Giving } 0.05 \text{ as the significant level and the degree of freedom} = 9.$$

#### Hypothesis One

**Ho:** Business Process Reengineering does not impact positively on the performance of Manufacturing Firms in Nigeria.

**Hi:** Business Process Reengineering impact positively on the performance of Manufacturing Firms in Nigeria.

#### Hypothesis Two

**Ho:** Business Process Reengineering enhances the quality of product created in manufacturing firms in Nigeria.

**Hi:** Business Process Reengineering d not enhances the quality of product created in manufacturing firms in Nigeria.

**Contingency Table 4.1**  
Using table

Variable	Table 2	Table 3	Total
Strongly Agreed	112	136	248
Agreed	109	114	223
Strongly Disagreed	53	49	102
Disagreed	41	21	62
No idea	8	3	11
<b>Total</b>	<b>323</b>	<b>323</b>	<b>646</b>

### 14. T-Test (Test of Hypotheses)

The hypotheses earlier formulated were tested below to establish the legitimacy of table 2 and 3.

$$X = A + \sum d/n$$

$$S^2 = \frac{1}{n-1} \{ \sum d^2 - \left( \sum \frac{d}{n} \right)^2 \}$$

											Total
<b>X</b>	112	109	53	41	8	136	114	49	21	3	646
<b>d= x- 65</b>	47	44	-12	-24	-57	71	49	-16	-44	-62	-4
<b>d<sup>2</sup></b>	2209	1936	144	576	3249	5041	2401	256	1936	3844	21592

$$\bar{X} = A + \frac{\sum d}{n} = 65 + \frac{-4}{10} = 65 - 0.4 = 64.6 \sim 65$$

$$s^2 = \frac{1}{n-1} \left\{ \sum d^2 - \left( \frac{\sum d}{n} \right)^2 \right\} = \frac{1}{9} [21592 - \left( \frac{-4}{10} \right)^2]$$

$$= \frac{1}{9} (21592 - 0.8) = \frac{(21592 - 0.8)}{9} = \frac{21591.2}{9}$$

$$s^2 = 2,399$$

$$t = \frac{-d}{\frac{\sqrt{s^2}}{n}} = t = \frac{-4}{\frac{\sqrt{2399}}{10}}$$

$$t = \frac{-4}{\sqrt{239.9}} = \frac{-4}{15.5}$$

$$= -0.258$$

**T Test Calculated** - 0.258

**T score** = 2.262

The researchers state the null hypotheses and the alternative hypotheses

$$\begin{aligned} H_0: \bar{X} &= \mu && \text{either reject or accept} \\ H^1: X &\geq O && \text{accept} \\ H^2: \bar{X} &\leq O && \text{reject} \end{aligned}$$

The test statistics shall be the sampling distribution of the mean.

The significance level is set at 5% (0.05) in view of the hypotheses formulated.

The computed T score is -0.258 and the critical value of T is 2.262

#### Decision Rule

The computed T score of -0.258 is < than the critical value of 2.262, thus falling into the negative response region. The researcher therefore reject  $H_0$  and accept  $H_i$  meaning Business Process Reengineering impact positively on the performance of Manufacturing Firms in Nigeria and as well enhances the quality of products produce in manufacturing firms in Nigeria.

#### 15. Summary of Major Findings

The subsequent results were arrived at after taking into reflection the analysis of data and test of hypotheses in stripe with the objectives of the study.

Findings show that, Business Process Reengineering impact positively on the performance of Manufacturing Firms in Nigeria as BPR help in eliminating non essential activities.

Secondly, Business Process Reengineering enhances the quality of product produce in manufacturing firms in Nigeria as firms' vital point is on well-built and motivated leadership for the benefit of the entire organizational system.

Finally, findings indicate that Business process reengineering reduces costs and sequence times by eliminating unproductive activities and the employees who perform them. Reorganization by teams decreases the need for management layers, accelerates information flows and eliminates the errors and redraft caused by numerous handoffs.

#### 16. Conclusion

Most businesses if not all does an ad-hoc activity, or part of a process. Impromptu behaviors are often ineffective, and where similar behavior happens often, there may be range for turning them into a more convenient and well-organized business procedure. Business Process Reengineering, (BPR) in an ideal world, start with a clean organizational schedule, and further sketch up those processes that would best enable the firm to carry out their business activities effectively and efficiently. It is a transformational programme, run and managed by a professional Programme Manager who are responsible for moving the organization from its present state, to where the organization oath to be

Essential view of reengineering is the elimination of out-of-date rules, assumptions, and processes. Processes that are weighing down the organization must be challenged and evaluated to see if there is a better option. Traditional rules of work design are mainly based on a model of decentralization (specialization of labour)

and economy of scale derived from the Industrial Revolution. This is a breeding ground for tunnel vision where accountability, blurs, and critical issues fall between the cracks. No one is able to see the whole picture to be able to respond quickly to new situations. As a result, it should not be surprising to companies to find their businesses underperforming due to these processes and structures that are obsolete.

"Reengineering requires looking at the fundamental processes of the business from a cross-functional perspective." This implies that by necessity, for reengineering to work, the team assembled to reengineer the process should represent the functional units involved in the process being reengineered and all the units that depend on it. The reengineering effort must break away from convention wisdom and organizational boundaries, be broad and cross-functional, and use information technology not to automate existing process but to enable a new one.

The main cornerstones of any firm are the people and the processes involved. If individuals are motivated and yet the business processes are cumbersome and non-essential activities remain, organizational performance will be poor.

### 17. Recommendations

To remain vibrant and successful, business process reengineering required all round working of activities in the complete organization and the full end to end the processes. Customer focus, superior process design and a strong and motivated leadership is key rudiment for the success of any business organization, as reengineering is the key that every organization should possess to attain relevant success.

Management should connect similar actions instead of integrating their outcome. This belief means to form links between similar functions and to harmonize them while their outcome are in process rather than after they are concluded.

Information should be capture once and at the source. A critical factor for reengineering of the business process to succeed is to have executive leadership with real vision and improving the reengineering process constantly as a process cannot be change or reengineered overnight.

Just as companies have organization charts, firms should also have a process road maps to give a picture and direction of how work flows through the organization. Put the assessment point where the work is performed, and build control into the procedure. This principle suggests that instead of having those who do the work separate from those who monitor the work, the people who do the work should also make the decisions and that the process itself can have built-in controls.

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