



Business Process Re-Engineering and Federal Tertiary Institutions Competitive Advantage

Olabimtan, Rashidat.O. & Omojaro, Anthony O.

Department of Business Administration and Management

Federal Polytechnic

Ilaro, Ogun State, Nigeria

E-mail: ijymens@gmail.com, omojaroanthony@gmail.com

Phone: +2348028071660, +2348145043313

ABSTRACT

Business Process Re-engineering (BPR) is the latest trend in modern business. It is a process of changing from the old ways of doing things to a more innovative method which often lead to improved performance of organizations. Educational institutions, especially those in the public sector are yet to take full advantage of this new phenomenon; which has spurred this study into action. The study adopted a survey research design where data was collected using a structured questionnaire. The study population comprises of 455 Academic Staff of Federal Polytechnic Ilaro, Ogun State from the five (5) Schools which makes-up the Institution. The sample size of 213 respondents was chosen for the study. Data was analyzed through SPSS using Ordinary Least Square (OLS) while the hypotheses were tested using Multiple Regression Analysis. The findings of the study revealed that re-engineered technology has a significant effect on the ease of learning in federal tertiary institutions. Similarly, the findings of the study revealed that management commitment significantly has an effect on innovative strength. The study recommended that government and all other stakeholders in Federal tertiary institutions should take active role in the successful execution of Business process re-engineering in order to achieve greater results.

Keywords: Business Process Re-engineering (BPR), Competitive Advantage, Management Commitment, Technological Innovation, Innovative Strength, Ease of Learning.

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1. INTRODUCTION

Different institutions have found themselves in difficult situations at different times which is often self-inflicted. Most of the time, these problems arise due to bad decisions taken by top management, breakdown of relationships and trust issues, equipment malfunction or even low employee morale which often leads to low-productivity. During the last decades, the efficiency of administrative processes has become a major concern for many organizations. This situation can be comfortably handled or tackled by utilizing different strategies and methods (Husameddin and Mohammad, 2018). The concept of Business Process Re-engineering became the suitable panacea to the problems mitigating against the success and competitive advantage of most organizations or institutions. Dekkers (2008) posits that organizations tend to evolve by means of using Business Process Re-engineering (BPR). This positions BPR in the category of necessary tools for survival and growth of any organization.



With a high level of competition and competencies being imitated by other organizations, institutions can no longer depend on the old ways of operation, as a result, there is a need to re-organize processes. Business Process Re-engineering (BPR) will undoubtedly eliminate stereotypes in operations and eventually assist to replace old structures and reach innovative ways which will ultimately bring about a significant benefit to the organization (Husameddin and Mohammad, 2018). Federal tertiary institutions are a source of revenue to the government while at the same time providing essential service to the community at large. However, in terms of competitive advantage, most federal tertiary institutions are lacking competitive strength as compared to their counterparts in the private sector. This is because private tertiary institutions enjoy certain enabling factors such as adequate learning facilities, infrastructures, convivial policy and most importantly sufficient funding.

In developed nations today, tertiary institutions of learning are redesigning their modus-operandi so as to enhance their competitive edge over other tertiary institutions from other countries across the globe. It is gainsaying to emphasize that educational institutions in the developed nations are moving from being just educational organizations to being "Learning organizations". This situation of lack of competitive advantage by federal tertiary institutions is best typified by Nigerian graduates who migrate to advanced countries in search of a "white collar job" but often are not given the chance because of the prejudiced notion that Nigerian graduates are half-baked products and as such they have to enroll for a programme that will upgrade their qualification to earn such "white collar" jobs. With all these in mind, it becomes very crucial and expedient for Nigeria's educational institutions; with emphasis placed on the federal tertiary institutions to innovate their operations so as to compete favorably against their counterparts in the private sector as well as other countries at large. This study therefore seeks to investigate the attendant effects of Business Process Re-engineering (BPR) on the competitive advantage of federal tertiary institutions.

As a concomitant of the identified need to carry out a research on the area of interest, the broad objective of this study is to determine the effects of Business Process Re-engineering (BPR) on the competitive advantage of federal higher institutions of learning. However, the study will also be pursuing the following specific objectives:

- i. To determine the effect of re-engineered technology on ease of learning
- ii. To investigate the significance of management commitment on innovative strength of the institution

The study focused on the role played by technology and management commitment on the competitive advantage of Federal Polytechnic, Ilaro, among its counterparts in other states across the federation.

2. LITERATURE REVIEW

2.1 Business Process Re-engineering

Business Process Re-engineering (BPR) is a concept developed by Michael Hammer and James Champ in the year 1990. According to the two scholars, the concept is a term which refers to the efforts employed to change the way work, tasks and duties are performed by simultaneously addressing all the aspects of work that impacts performance and competitive advantage (Ikon, Onwuchekwa and Nwoye, 2018). In the words of Hammer and Schambee (1995), BPR is the rethinking and radical design of the major processes of organizations to achieve results of tremendous improvement in modern performance measures; service, quality, cost and speed of work. According to the definition of Hammer and Schambee (1995), the four basic components of BPR are:

- a) **Fundamental Rethinking:** BPR enables organizations to have a rethink about their operations. It allows managers to query why they do what they do and determine if such tasks or operations are necessary or are just a duplication of existing processes.
- b) **Radical Redesign:** the BPR includes radical solutions to existing challenges of work force which mitigates against productivity of labour.

- c) **Dramatic Result:** BPR will always achieve great and better results when applied successfully when applied effectively in any organization. Organizations that have successfully implemented the concept of BPR have achieved tremendous results (Husammedin and Mohammad, 2018).
- d) **Processes:** BPR focuses on crucial processes and activities that directly contribute to organizations' performance.

Various strategies can be used to achieve re-engineering in higher institutions of learning which includes but not limited to Total Quality Management (TQM), Change Management, Restructuring, Design and Systems Development. All these strategies can help achieve gains in service and costs (Jacka and Keller, 2002).

2.2 Technological Innovation/Re-engineered Technology

Technological Innovation has been the underlying purpose for construction, design and use of Management Information System (MIS). MIS is a set of trained human elements and the mechanical elements needed to obtain and convert data into decision-making information. Information Technology (IT) has been ascribed as one of the achievements of the technological scientific revolution that has a direct and significant impact on the formation of work within organizations (Husammedin and Mohammad, 2018). The use and application of Information Technology has many benefits for individuals, departments and systems which includes but not limited to raising the level of performance, creating value for the organization, inter-firm competition, effective decision-making and re-engineering of operations (Morocco, 2006). Similarly, technological innovation may come in handy when lecture rooms are to be redesigned to make learning easier. Most private learning institutions in Nigeria have seized the opportunity presented by technological innovation in terms of redesigning their lecture rooms to make learning easier and comfortable to the students, constructing of solar panels to provide alternative source of power to the institution etc. The relevance of technological innovation to bolster the competitive advantage of tertiary institutions of learning cannot be over-emphasized and must not be taken for granted by any organization who desires for an increased competitive advantage.

2.3 Ease of Learning

The ease of learning is a significant determinant of competitive advantage enjoyed by any institution of learning. Institutions who create a convivial environment where students can learn easily and without unnecessary stress, will have a competitive advantage in terms of patronage of its service by members of the community.

In this present age, prospective students no longer desire the rigorous and archaic method of learning, rather, they crave and desire for an institution of learning where they can achieve academic excellence with ease. Enabling environment may include a conducive classroom that makes the students comfortable as well as having access to uninterrupted internet service to further complement the efforts of the physical classroom. Interestingly, most students in the developed countries who work part-time can attend lectures from their convenience without any physical contact with their facilitators. More interesting to know is that this category of students will perform as much as their colleagues who attended the physical classes.

2.4 Management Commitment

The successful implementation of BPR in organizations may be limited by some obstacles. According to Malhotra (1998), the biggest limiting factors that confronts BPR include: un-sustained management commitment and leadership, unrealistic scope and expectations as well as resistance to change. It is not just enough for management to recognize a need for change, it is equally important to approve the necessary actions needed to handle the change. This is why the support of top management is crucial and should be sustained all through the stages of implementation of the process so as to ensure effectiveness.



In an organization implementing change, it is a pre-requisite that leaders be visionaries, motivators, communicators and lag-breakers. Leadership have to be fully committed to the change, however, middle managements' view of change and unwillingness to change is one issue that remains a problem (Elmuti and Kathawa, 2011).

2.5 Innovative Strength

The speed of rapid changes in the markets, shorter product life cycles and consumers' high expectations and demands requires a fundamental innovation within an organization's structure, culture and other management processes (Goksoy, Ozsoy and Vayvay, 2012). BPR is the right tool to address these issues and it is for this reason that the concept of BPR is going to be relevant for many decades to come because:

- i. BPR is all about innovation and improvement,
- ii. Process redesign and IT are essential ingredients of BPR (Thyagarajan and Khabiti, 2004).

Business Process Re-engineering is important for all organizations to look into because it helps an organization achieve new ideas and ways of doing things that will be beneficial to the organization.

According to Sharma (2006), BPR is a transformed processes that combines to form a component of a larger system aimed at enabling organizations to empower themselves with contemporary technologies, business solutions and innovations.

2.6 Theoretical Framework

This study is anchored on Administrative Management Theory propounded by Henri Fayol (1916). The concept of BPR traces its origin back to management theories developed as early as the nineteenth century. The theory propagates that responsibility and authority must come together, there must be order, unity of direction, subordination of interest, discipline, initiative, equity, team spirit etc. are all needed for the success of BPR. The theory emphasizes the classical belief that there is no one best way of doing things. During the time of Frederick Winslow Taylor, technology did not allow large organizations to design processes in a cross-functional manner thus, specialization was the state of the art method to improve efficiency at that time. This theory relates to this study because federal tertiary institutions are usually characterized by "Bureaucracy" which involves a rigorous process before reaching at a decision. The management of federal tertiary institutions need to expedite all the processes involved in reaching a decision so as to take full advantage of Business process Re-engineering.

2.7 Empirical Review

Ikon, Onwuchekwa and Nwoye (2018) conducted a study on BPR and competitive advantage in a recessed economy using some selected brewing firms in Anambra State, Nigeria as a study. The study used a descriptive and survey design. Data was collected and analyzed with the use of correlation analysis using Pearson's Product Moment Correlation Co-efficient. The findings of the study revealed a significant positive relationship between management commitment and innovative strength where management commitment is an indicator of BPR and innovative strength is an indicator of competitive advantage. The study recommended among other things that management commitment of the focused firms should lead the change processes by example so as to motivate their followers to buy into the idea.

Taiwo (2017) carried out a study on BPR and organizational performance in order to determine the relationship that exist between them using United Bank for Africa (UBA) as a study. The study collected and analyzed data through SPSS using Chi-square. The findings of the study revealed that BPR is a useful weapon for any organization that is seeking to improve its performance. The study went further to recommend that re-engineering process remains an effective tool for organizations striving to operate effectively and efficiently. Osano and Okwena (2015) studied the Kenyan banking sector to investigate the factors that influence performance of BPR projects.



The study adopted a descriptive and inferential research design. The study found that management commitment, communication of change, processes and systems management and monitoring and evaluation all influence the performance of BPR projects at KCB Ltd. The study recommended that effective change management is a success factor for BPR; therefore, organizations should ensure that communication of change is made to enhance the meeting of project objectives and effectively prepare their organizations for change.

Nzewi, Nzewi and Moneme (2015) investigated the effect of BPR on performance of courier service organizations in Anambra State, Nigeria. The study employed descriptive research design. The data collected by the study was analyzed using Principal Component Analysis and Multiple Regression Analysis. The result of the analysis revealed that a significant relationship exist between BPR factors (change management, process redesign, management commitment and IT infrastructure) and overall organizational performance of the selected courier service organization.

The study concluded that BPR is a vital model for improvement in firm's operational performance and achievement of long term growth and competitive advantage. The study recommended that IT strategy must be aligned with organization's business strategies, training and education of employees on newly introduced operational processes.

2.8 Gaps in Literature

Extant literatures have sought to create a vast knowledge on the issue of Business Process Re-engineering. However, the literatures reviewed in the current study have all focused on the private sector while neglecting to consider the public sector. The public sector is the cash cow for the Nigerian government to raise revenue to finance its operations. Government need to be informed about the significant changes which BPR can bring to the public sector. It is against this identified gap in literature that this study shifted the paradigm to the public sector with particular reference to the Federal tertiary institutions.

3. METHODOLOGY

Research Design

The current study adopts a descriptive and survey design because data will be sought through the use of a structured questionnaire.

Population of the Study

The population of the study comprise of all Academic staff in the five schools (Faculty) that makes up the organic structure of Federal Polytechnic, Ilaro, Ogun State with an exclusion of the non-teaching departments. The schools are Engineering, Environmental, Pure and Applied Science, Management Studies and Information Technology. There are a total of 28 departments in all the schools.



Table 1: Each school Breakdown of Departments

S/N	SCHOOL	DEPARTMENTS	No. of Academic Staff
1.	Engineering	a) Mechanical b) Electrical c) Computer d) Civil e) Agric & Biology f) Mechatronics TOTAL	22 26 12 18 13 5 96
2.	Environmental	a) Architectural b) Art and Design c) Building Technology d) Estate Management e) Quantity Survey f) Survey and Geo-Informatics g) Urban and Regional Planning h) Transport TOTAL	11 10 8 10 8 9 14 5 75
3.	Pure and Applied Science	a) Science Laboratory Technology b) Food Technology c) Hospitality d) Leisure & Tourism e) Agric Technology f) Maths and Statistics g) Computer Science h) Nutrition and Dietetics TOTAL	47 18 10 7 12 18 17 8 137
4.	Management Studies	a) Accountancy b) Banking and Finance c) Bus. Admin. & Management d) Marketing e) Public Administration f) Insurance g) Taxation h) General Studies TOTAL	19 10 14 9 10 5 7 37 111
5.	Information Technology	a) Office Technology & Mgt. b) Library information Science c) Mass Communication d) Music TOTAL	12 5 14 5 36
	GRAND TOTAL		455

Source: Bursary Department, Federal Polytechnic, Ilaro (2019)

Sample Size and Sampling Technique

A sample is a representative of the entire population who shares similar features with other members of the population and whose opinion can be generalized on the population. In determining the sample for the study, a Stratified sampling technique which falls under Probability sampling technique is employed for this study.

Applying Taro Yamane formula:

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

Where:

n = sample size

N = population

e = error percentage

The study assumes the maximum variability to be 50% ($p = 0.5$) and taking 99% confidence level with $\pm 5\%$ precision, the calculation for required sample size will be as follows:

$$\begin{aligned} n &= \frac{455}{1 + 455(0.05)^2} \\ &= \frac{455}{2.14} \\ &= 213 \end{aligned}$$

Bowley's allocation formula will be used to allocate the questionnaire appropriately to the studied departments:

$$nh = \frac{nNh}{N}$$

Where:

nh = Allocation formula

Nh = Number of items in each stratum in the population

n = total sample size

N = Population size

Applying the formula, we have:

School of Engineering	=	$96 \times 213 / 455$	=	45
School of Environmental	=	$75 \times 213 / 455$	=	35
School of Pure and Applied Science	=	$137 \times 213 / 455$	=	64
School of Management Studies	=	$111 \times 213 / 455$	=	52
School of Information Technology	=	$36 \times 213 / 455$	=	17
				<hr/>
				213



Research Instrument

The questionnaire is the chosen research instrument for data collection for this study. The questionnaire is structured on a five point Likert scale: **Strongly Agree (SA)**, **Agree (A)**, **Disagree (D)**, **Strongly Disagree (SD)** and **Undecided (U)**.

Validity and Reliability Test

The questionnaire validity test was carried out using content and face validity with the help of instrument validation experts and management experts. Reliability test was carried out for internal consistency using Cronbach (1951) Alpha's test.

Method of Data Analysis

The collected data will be analyzed by Ordinary Least Square method using SPSS version 20 software. The research hypotheses for this study is tested using regression analysis at 5% level of significance.

4. DATA PRESENTATION

Table 1: Reliability Statistics

Cronbach's Alpha	N of Items
.751	207

Table 1 shows the reliability test with a value of 0.751 which translates that the research instrument was sufficient to obtain the required information from the respondents on the subject matter.

Table 2: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	90.319	70.879		1.552	.134
Re-engineered technology	3.447	.135	.971	20.887	.000

a. Dependent Variable: Ease of Learning

Table 2 above shows the significance of the variables and the relationship between the dependent variable and the predictor. The coefficient result of 3.447 indicates that there is a positive relationship between Re-engineered Technology and Ease of learning. The significance value of re-engineered technology standing at 0.000 indicates that re-engineered technology is statistically significant at 5% level of significance.

Table 3: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	100.183	120.083		.204	.740
Management Commitment	78.531	11.822	.774	5.129	.000

a. Dependent Variable: Innovative strength



Table 3 above shows the significance of the variable and also the relationship between the dependent variable and the predictor. The coefficient result of 78.531 indicates that there is a positive relationship between Management commitment and Innovative strength. The significance value of Management commitment standing at 0.000 indicates that Management Commitment is statistically significant at 5% level of significance.

5. CONCLUSION

The current study set out to investigate the attendant effects of Business Process Re-engineering on the competitive advantage of Federal tertiary institution in Nigeria using Federal Polytechnic, Ilaro as a research subject. The study collected relevant information that could aid the objectives of the researchers. From the result of data analysis, the proxies of the independent variable i.e. Management Commitment and Re-engineered technology showed positive significance on the proxies of the dependent variable i.e. innovative strength and ease of learning with a p-value of .000 tested as 5% level of significance. Conclusively, the importance of Business Process Re-engineering on Competitive advantage of Federal Tertiary Institutions is very profound. The findings of this study is consistent with the findings of Ikon, Onwuchekwa & Nwoye (2018); Husameddin & Mohammad (2018) and Taiwo (2017).

6. RECOMMENDATIONS

Based on the findings of this study, the following recommendations were put forward:

1. Management of Federal Tertiary Institutions in Nigeria should embrace Business Process Re-engineering expeditently.
2. Government should take active role in the successful execution of Business process re-engineering in order to achieve greater results.
3. Lastly, all other stakeholders in Federal Tertiary Institutions should play their role in the successful implementation of BPR in their respective organizations.

7. SUGGESTION FOR FURTHER STUDIES

The study only considered two variables for the independent and dependent variables respectively. Future studies should consider investigating more variables which are germane to the concept of Business Process Re-engineering in order to achieve more generalizability of this kind of study to other sectors of the country.



REFERENCES

1. Amer, S., & Kandil, A. (2010). Organizational development. Amman: Dar Al-Fikr Publishers & Distributors.
2. Cronbach, L. (1951). Coefficient Alpha and the internal structure of tests. *Psychometrika*, 16, 297-334.
3. Dekkers R. 2008. Adapting organizations: The instance of BPR. *Systems Research and Behavioral Science* 25, 45–66.
4. Elmuti, D., & Kathawala, Y. (2011). An Investigation of the Human Resources Management Practices of Japanese Subsidiaries in the Arabian Gulf region. *Journal of Applied Business Research (JABR)*, 7(2), 82-88.
5. Goksoy, A., Ozsoy, B., & Vayvay, O. (2012). Business Process Reengineering: Strategic Tool for Managing Organizational Change an Application in a Multinational Company. *International Journal of Business and Management*, 7(2), 90-112.
6. Hammer M, & Champy J. (1993). *Reengineering the Corporation: A manifesto for business revolution*. Harper Business: New York.
7. Hammer, M., & Champy, J. (1995). Reengineering of the work systems in the BPR organizations, an opencall for the new administrative revolution. Cairo: Shamseddine Othman.
8. Husameddin, H. & Mohammad, A. (2018). An Overview of the Business Process Re-Engineering in Higher Education. *Asian Journal of Management Sciences & Education*, 7(2), 99-106.
9. Ikon, M. A., Onwuchekwa, F.C. & Nwoye, C.O. (2018). Business Process Reengineering (BPR) and Competitive Advantage in a Recessed Economy. A study of Selected Brewing Firms in Anambra State, Nigeria. *International Journal of Management Technology*, 5 (2), 1-15.
10. Jacka, M. J., & Keller, P. J. (2002). *Business Process mapping – improving customer satisfaction*. New York: John Wiley and Sons.
11. Morocco, A. (2006). Management of scientific assets and future directions for the director of the twenty-first century. Egypt: Modern Library.
12. Nzewi, H. N., Nzewi, U. C., & Moneme, P. (2015). Business Process Reengineering and Performance of Courier Service Organizations in Anambra state, Nigeria. *American Journal of Social and Management Sciences*, 6(1), 24-33.
13. Osano, H. M., & Okwena, D. M. (2015). Factors Influencing Performance of Business Process Reengineering Projects in Banks in Kenya: Case of Kenya Commercial Bank. *Journal of US-China Public Administration*, November, 12(11), 833-844.
14. Malhotra, Y. (1998). Business Process Redesign: An Overview. *IEEE Engineering Management Review*, (26), 3.
15. Sharma M. (2006). Business Process Reengineering: A Tool to Further Bank Strategic Goals. *Journal of Management Information Systems* 12 (1), 65-74.
16. Taiwo, A.A. (2017). Business Process Reengineering and Organizational performance. Paper presented at the 11th annual National Conference of School of Management Studies, Federal Polytechnic, Ilaro, Ogun State held on 28th-30th November, 2017.
17. Thyagarajan, V., & Khatibi, A. (2004). BPR - A Tool for Managing the Change. *The Journal of Human Ecology*, 15(1), 57-61.