**Application of Business Process Reengineering in Higher Institutions: A Case Study of the Registrar’s**

**office, American University of Nigeria.**

BY

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In partial fulfillment of the requirement for the award of degree of Master of Science (MSc.IS) in Information Systems submitted to

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Fall 2017

**CERTIFICATION**

I certify that the work in this document has not been previously submitted for a degree nor has it been submitted as a part of a requirement for a degree except fully acknowledged within this text.

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-

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### ABSTRACT

*Of the major advancements in the Information Technology industry, the 90s saw the development of Business Process Reengineering (BPR) systems*. Despite the heavy cost and efforts required to implement such systems, the benefits to organizations, having achieved more efficient operations and improved competitive stance have been dwindling. *The failure rate of BPR system implementations encouraged academicians and practitioners alike to utilize critical success factors to study project success (Soh et al, 2000, Willis and Willis- Brown, 2002). This thesis aims to investigate the critical success factors that lead to successful implementation of BPR projects in institutions of higher learning. From the literature review, a BPRM framework was developed using critical success factors. The key factors were identified and their applicability and impact in successful implementation were explored. The qualitative research approach was used in the registrar’s office at the American University of Nigeria. A set of 6 semi-structured interviews were conducted and the results were analyzed. The result of the study indicates that all the factors of the BPRM framework exhibited for implementation success of this case have high levels of criticality.*

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### CHAPTER ONE- INTRODUCTION

This thesis investigates the critical success factors in business processes of the registrar’s office at the American University of Nigeria. Business process reengineering (BPR) is a management tool used to assist an organization in ensuring effective, efficient and economic growth through the restructuring and dramatic redesigning of business processes. Thus, BPR studies are of great benefit to academicians as well as professionals in the business world (Champy & Davenport 2003). The objective of this chapter is to provide some background information on the topic. The next section will focus on the problem statement. The objective of the study will be discussed in section three, and section four will focus on the research questions of the study. Finally, the last section will outline the structure of the thesis.

### BACKGROUND OF THE STUDY

BPR plays an important role in running organizations, irrespective of the size. It helps create a channel through which information can reach all the functional units which in turn, can lead to benefits such as effective work performance, efficiency, and accurate scheduling.

### STATEMENT OF PROBLEM/DISCUSSION

According to the research, the presence of bureaucracy, control processes, and regulation, as well as expensive systems are some of the hindrances to achieving efficiency and productivity in most organizations (Reyes, 2001). BPR systems implementations

involve complex effort (Scott and Vessey, 2006). Moreover, numerous failed projects have been attributed to the lack of proper alignment of processes (Soh et al, 2000, Willis-Brown; 2002).

In most instances, the adverse results of failed implementation are in the nature of heavy monetary/competitive advantage losses which can never be recovered and, in turn, harm the organization (Davenport 1998, Davenport 2000). Academicians and practitioners have attempted to address the high failure rate of BPR implementations (Somers et al, 2000). Practitioners have also attempted to understand the basis of success in implementation of the system in recent times, using identified critical success factors (Akkermans & Van Helden, 2002; Motwani et al, 2005; Nah et al, 2003; Somers and Nelson, 2004; Umble et al, 2003).

Critical success factors are “the limited number of areas in which results, if satisfactory, will ensure successful competitive performance for the organization” (Rockart, 1979). According to Hailekiros Sibhato & Ajit Pal Singh, (2012) Ethiopian universities are not able to effectively discharge their national responsibilities in producing qualified human power and BPR is the management tool for solving problem and enhancement of the universities performance (Hailekiros Sibhato & Ajit Pal Singh, 2012). The search for published research from the academia as it relates to BPR systems implementation in Nigeria especially in higher institution of learning has not been successful but can be seen in the banking sector as well as small business (Eke,G.J & Adaku. N.A, 2014) and small business enterprises (Orogbu, Onyeizugbe & Onuzulike, 2015). The motivation for this research is interest and personal development.

### OBJECTIVE OF THE STUDY

* + - To identify the CSFs necessary for successful implementation of BPR projects
		- To analyze the processes in the Registrar’s office using BPR techniques and identify the problems therein.
		- To redesign the processes so as to improve them.

### AIM OF THE STUDY

To apply BPR techniques, to analyze the processes in a higher institution, identify the inherent problems therein and redesign the processes appropriately.

### RESEARCH QUESTIONS

The process of change is very complex and is not easily achievable, as it involves the interrelationship among organizational components such as people, technology, motivation, benefits, management (Grover, Jeong, Kettinger, and Teng, 1995).

Therefore, the following questions will be explored in order to achieve the objective of the study:

* + - What are the critical success factors in implementing projects?
		- Are the identified critical success factors from the literature review relevant for the successful implementation of BPR projects in an institution of higher learning in Nigeria?

### I.5 GLOSSARY

Provided below is a set of definitions.

Project: A transient endeavor undertaken to design or achieve a unique result or service (APM 2017).

Project Management: This is the application of skills, methods, knowledge, processes, and experience in order to achieve the project objectives (APM, 2017).

Information Systems [IS]: This is the means by which organizations and individuals collect, process, store use and disseminate information (UK Academy for Information Systems 1999, p.1).

### 1.6 STRUCTURE OF THE THESIS

The next chapter reviews the literature and highlights the knowledge gap with reference to the research question. The following chapter describes the research methodology used to achieve the goal of the study. In the subsequent chapters, data collection and findings are presented, discussed and analyzed, while the final chapter summarizes the study and gives the final result.

### CHAPTER TWO-LITERATURE REVIEW

* 1. **INTRODUCTION**

The aim of this chapter is to analyze the different categories identified from the literature such as the history of BPR, project success, critical success factors in projects, BPR systems implementation and critical success factors.

### HISTORY OF BUSINESS PROCESS REENGINEERING

Despite its short existence, business process re-engineering has gained a lot of attention. Janson (2005), in his article, stated that BPR is a major dimension of organizational change that most organizations are deploying to renew their devotion to customers. Reengineering is a reversal of industrial revolution, which is the movement where machines change the way of life of people and the methods of production (Hammer & Champy, 1993).

BPR came into existence due to the economic crisis and the recession of the late 1980s and early 1990s. Butler (1980), describes the 1980s as a time of financial re- engineering, while the 1990s as a time of technological re-engineering. Hammer (1993),suggested that BPR is capable of helping organizations get out of crisis situations by being able to adapt to market conditions and also by being customer focused and innovative.

Prior to the emergence of BPR, industries and business enterprises accepted that work should be broken down into smaller tasks, which will make the structure hierarchical so that assigned tasks can be managed effectively. However, organizations that adopted this hierarchical structure encountered pitfalls when their environments changed from what they used to know to what they could not recognize. Based on Hammer (1993), most problems faced by many organizations today in the global environment is that the desire of customers is becoming very complex and in order to survive this competition, the use of computers alone is not sufficient. In fact, redesigning of the core business processes is apt (Hammer 1990). BPR provides an avenue to proact to the changes that fit the competitive environment in ways that enable organizations to align themselves to the industrial age.

In 1776, Adam Smith published an article on “The Wealth of Nations”, and it says “no matter how technologically refined a company’s products and services are or their national origin and nature of their business, their work styles and organizational pedigree can be traced back to the prototypical pin factory”. M. Hammer argued that the development of most industrial nations has been the type where modern business bureaucracies have expanded the organizing principles to the offices and corporate headquarters (Hammer, 1993). This has been propelled by incessant demand where producers take over the market. However, with the growth of competition across the world between old and newly industrializing nations, customers have overtaken the market. Old ways of manufacturing have proved that they are unequal to the task. At the time, customers were consumers who were last in the chain production, where poor services and trashy goods were accepted.

Now, customers have dominated the system, thus making it impossible for manufacturers to produce unacceptable goods, with the aim of not being responsible to any customer. The current customer’s requests for quality and responsibility of goods and services be considered.

Business process reengineers see that the operational divisions that once worked successfully, in reality, prevent firms from reacting to changes in the operations. It has been argued that re-engineering is needed to reduce the time it takes to manufacture and distribute products, which in turn reduces the inventory time and cost of quality of products in the market (Ligus, 2000).

Hammer and Champy (1993) defined BPR as “the rethinking and radical redesign of business activities in order to achieve a more improved result while cutting down on costs while improving quality as well as service and speed”. Davenport (1993), described BPR as the evaluation and plan of the workflow and the procedures embedded among organizations. Business activities should not only be viewed as a collection of individual or purposeful tasks but should be split into smaller tasks so as to achieve maximum effectiveness in service and manufacturing environment.

### 2.3 PROJECT SUCCESS CRITERIA

The success of a project is not dependent on cost, time and quality, which, according to (Atkinson, 1999), is the “iron triangle” and that the success of any project is not determined at the end of the project, but on the outcome throughout all stages.

Kloppenborg and Opfer’s (2002) study on project management reveals that several tools and methods that were used in the 1970s were related to cost and schedule control (CSC), performance measurement, program evaluation and review of techniques (PERT), work breakdown structure (WBS) and life-cycle management (Kloppenborg & Opfer,2002). In the 1980s, research was centered on design-to-cost and life-cycle costing.

On the other hand, in the 1990s, a more refined process ensued focusing on leadership, motivation, communication and team building. Project Management Information (PMI) states that when good practices on tools, skills, and methodologies are rightly applied, the chances of a project’s success are higher (PMI, 2004). Also, management of daily activities alone does not guarantee success.

### Getting Stakeholders into the Picture

Frame (1994) discussed the importance of a holistic approach in communicating across all stakeholders of a well-defined life cycle, as it will help in aligning project activities with business processes, thereby reducing chaos. The overall perception of the stakeholders and project managers is very crucial. In fact, ignoring stakeholders at all stages and not supporting their expectation as well as need can lead to significant gaps (Deane, Clark,and Young, 1997). There must be shared comprehension of conditions for success between stakeholders for successful projects (Wateridge, 1998). Stakeholders’ identification, requirement, and understanding can lead to successful projects (PMI, 2004).

Turner, (2004), on summarizing the work of (Wateridge 1995 and Muller 2003), provides the conditions for successful project execution: agreement of success criteria with

stakeholders before project initiation and during the project execution, owners of the project should be interested in the performance of the project.

### Critical Success Factors

Critical Success Factors are those conditions that must be in place for a successful operation of an organization in order to achieve high performance (Andrew C Boynthon & Robert W Zmud, 1984), CSF was developed by Rockart J. (1979) through his research on Management of Information Systems. The challenge addressed, was a large amount of unfiltered information at the organization’s management level, hence the call for the most relevant data to support action and decision-making. Most published research agree that CSFs are of great importance to an organization’s management so as to meet the set goals. (Frenzel, 1992; Maizlish, B. and Handler, R., 2005).

### Critical Success Factors in BPR Systems Implementation

According to Andrew & Robert (1984), critical success factors are those conditions that must be in place for a successful operation of an organization in order to achieve high performance. Somers and Nelson, (2001) discuss CSFs in IS and BPR systems implementation, stating that BPR implementation is different from the traditional system in terms of scale, scope, organizational changes. Esteves and Pastor ,(2001) classified research related to BPR systems implementation into three categories: implementation approaches such as (methods, techniques, taxonomies), implementation success, issues

and case studies. Moon (2007) classified BPR implementation systems into case studies, change management and CSFs.

Somers and Nelson (2001) mapped out factors to the various stages of the BPR implementation lifecycle which are initiation, adoption, adaptation, acceptance, routinization, and infusion. Sherry Finney & Martin Corbett, (2007) added that though CSF topics are published, the perspectives of the different stakeholders are not considered, hence the gap.

### SUCCESS FACTORS IN IMPLEMENTING BUSINESS PROCESS REENGINEERING

By implementing BPR into their organizations, companies such as Ford Motor Co and Wal-Mart have benefitted immensely. However, about 70 percent of organizations that began the use of BPR did not get the expected results they desired as a result of the failure in the proper implementation of BPR (Hammer and Champy 1993). The implementation process of BPR is quite complex due to the tendency to increase productivity by reducing time spent and cost. BPR also improves quality and meets the customer’s desire. As such organizational change should always be considered.

According to some academic research on the success encountered in BPR, the contributing factors can be categorized thus:

* + - Change Management
		- Quality Culture
		- Management Competency and Processes
		- Organizational Structure
		- Project Management
		- Information Technology Infrastructure

### Change Management

This entails all human and social related changes needed by top management to expedite the implementation of new design processes and structures into a workable custom in order to deal with resistance in a more effective manner. Factors relating to change management include training and education and human involvement (Majed and Zairi 1999)

#### Training and Education

Majed and Zairi,(1999) argued that it is very important for the successful implementation of BPR. Berrington and Oblich, (1995) argued that firms that participate in re-engineering projects may have to train their staff hence budget will increase significantly. Total Quality Management [TQM] implementation, skills and techniques (Cooper, and Markus, 1995) as well as process analysis techniques (Dixon et al, 1994) are crucial aspects of training for BPR. According to Bruss and Roos, (1993) emphasis must be placed on the need to educate employees in IT related techniques for competitive advantage. Based on Towers, (1994), front-line staff, line managers, business and Information systems [IS] managers are the beneficiaries of training activities.

#### Human Involvement

Every person in an organization must be actively involved in the re-engineering process. They should also be consulted at all levels of the process. Line managers according

to Harrison, and Pratt, (1993), HR and process owners should all be involved. Experimentation of the process is very crucial (Bashein et al, 1994) for the success of reengineering; therefore, everyone must be prepared to accept mistakes (Majed and Zairi, 1999). Stimulating the organization’s ability to change is very crucial in the successful implementation of BPR (Benjamin and Levinson, 1993),

### Quality Culture (Empowerment)

Quality culture automatically becomes a critical factor as decisions are pushed down to frontline staff and business managers who work both on teams and individuals as the successful implementation of BPR (Thomas, 1994).Promotion of self-management and teamwork culture is achieved as staff feels more responsible and accountable (Mumford, 1995). When employees are empowered, they set their goals as well as monitor their performance so as to identify shortcomings and solve them, thereby supporting the implementation of BPR (Majed and Zairi, 1999).

#### Adjusting Reward and Incentive Systems

Nobody works without expecting some sort of incentive, hence a reward program is also vital in the implementation of BPR while adapting to new processes in the work environment (Hinterhuber, 1995). Since BPR has brought about different jobs, existing reward systems are no longer applicable to the new work environment (Davenport, and Nohria, 1994). It is imperative that an adjustment of the reward system, which must be fair, so as to encourage unity among workers. Job titles can be changed to encourage workers to accept the reengineering process without fear (Towers, Business Process Reengineering: a Practical Handbook for Executives, 1994).

#### Culture Creation for Organizational Change

According to Hammer and Champy, (1993) organizational change is an important element in the implementation of BPR as it influences an organization’s ability to accept change. New values, communication styles as well as management processes must be understood and accepted by employees for the proper implementation of the new redesigned process. All existing norms that are not relevant to the implementing process must be made away with so that the culture that suits the desired change can be implemented (Bruss and Roos, 1993). Two more important factors, trust, and honesty, are needed amongst team members (Jackson, February, 1997).

### Management Competence

The most observable managerial practice that influences the success of BPR implementation includes support and commitment, sponsorship as well as championship from top management Majed and Zairi, (1999)

#### Committed and Strong Leadership

It is the duty of top management to ensure that the implementation of BPR is successful through commitment and leadership. Hammer and Stanton (1995), added that the vision of the BPR process must be clearly defined to all employees so that they are motivated through effective leadership. Senior management owes it to the organization to be committed and show support throughout the re-engineering process. Guha,(1993), (as cited in Stanton, Hammer and Power, 1993) argued that adequate knowledge, guidance, and authority are needed in dealing with organizational resistance during the implementation of BPR.

### Organizational Structure/Teamwork

There is a need to create a new organizational structure that determines the integration of HR and the formalization of jobs and responsibilities as new processes are created which define job roles and responsibilities in an existing organizational operation Davenport and Short, (1990).

#### Sufficient Job Integration Approach

Davenport and Nohira, (1994) argued that labor integration is the best approach to HR design, as it supports the process-based and not function-based organizational structure. Individuals that work together perform tasks efficiently such that there is an improvement in cost, product quality, and time spent on the job. All this makes it very important to have HR architecture embedded in the organizational change (Majid and Zairi, 1999).

#### Effective BPR Teams

Teams should be familiar and master lots of techniques that will be useful for the successful implementation of a project (Kettinger, Teng, and Guha, 1997). These individuals should have a proven reputation (Cliffe, 1999). BPR teams should not only consist of people inside the organization but also those outside (Hammer and Champy, 1993). Qualities of an effective BPR team include the following: working team leadership, motivation, team empowerment and education of members in brainstorming techniques and process mapping, adequate size, and clarity of work approach (Berrington, and Oblich, 1995)

#### Effective Use of Consultants

The use of the best consultant is an added advantage in the successful implementation of BPR (Sherry Finney & Martin Corbett, 2007). This is so because consultants bring with

them specialized skills and experience needed for the organization. This process can both be expensive and time-consuming when built internally (Boyle, 1995). Consultants are neutral; they encourage unity among members. The level of experience a consultant possesses impacts on the success of BPR implementation and ability to change the re- engineering effort from areas of no potential use to areas of substantial benefits to the organization (Shabana, 1996).

### Project Management

Project management refers to the ongoing management of the implementation plan (Sherry Finney & Martin Corbett, 2007). Project management is a key factor in the successful implementation of BPR that involves the definition of project scope, work, and planned milestones. It is also dependent on effective planning and techniques. Project management also includes the implementation of performance measure, adequate use of methodology; external orientation and learning Davenport, (1993), effective process design, building process vision, adequate resources, and adequate identification of BPR value (Guha, Kettinger, and Teng, 1993).

#### Adequate use of Methodology

The use of disciplined approach and sound methodology are the determinants for BPR (Carr 1993). Klein (1994) argued that BPR methodology should be creatively selected so as to meet the organization’s need; an organization’s ability to get used to the BPR

methodologies signifies the ability to comprehend and the effective manner the new BPR methodology can attain.

#### External Orientation and Learning

Benchmarking is a tool that must be based on both customers and competitors; the requirement should be reviewed and measured for BPR. Also, all processes should be clearly defined for customer value (Rastogi, 1994).

#### Effective Planning and Use of Project Management Techniques

Adequate use of project management techniques such as the Gantt chart as well as managing issues based on people has an immense impact in ensuring a smooth flow of the redesign process (Index 1994). Learning from errors and detailed new designs are crucial for changing BPR implementation process to the most pleasant way.

#### Adequate Identification of BPR Values

Identification of re-engineering opportunities as well as values of both internal and external stakeholders should be the focus for a successful BPR implementation and a steady focus should be in place on the objectives of the business (Carr 1993).

### IT Infrastructure

Assessing the IT readiness of the organization is very important as it includes the architecture and skills (Tarafdar and Roy, 2003). Important factors that facilitate the success of BPR projects include: adequate IT infrastructure investment decision, building an effective IT infrastructure, adequate measurement of IT infrastructure effectiveness, increasing IT function competency, effective use of software tools, effective re-engineering

of legacy, adequate measurement of IT infrastructure effectiveness, effective alignment of IT infrastructure and BPR strategy.(Majed and Zairi, 1999)

#### Proper Alignment of IT Infrastructure and BPR Strategy

In order to achieve success of BPR initiative, there is need for proper alignment of both BPR and IT infrastructure strategies (Kettinger, Teng, and Guha, March 1997). The role of the top management is to formulate strategy that provides commitment to the entire redesign process, while that of the IS managers is to design and implement the IS strategy (Henderson, and Venkatraman, 1993). The process of integration between BPR strategy and IT strategy is the approach used in the alignment of IT strategy (Henderson, and Venkatraman, 1993). The extent of alignment between IT infrastructure and BPR is based on the identification of information resource needs in the BPR strategy, mapping out the IT infrastructure planning and IT managers in business planning (Reich, and Benbasat, 1996).

#### Increasing the IT Function Competency

Contributors to the effective role that IT functions play in BPR include effective IT function benchmarking (Gordon, 1994), IT function performance measurement (Saunders,and Jones, 1992), and building IT function competencies (Ross, 1998b). Code structure, programming language, architectural understanding and dependencies on the special language affect the process to reengineer a legacy system (Tilley, 1996). Therefore, there is a need for a comprehensive and flexible structure that emphasizes on quality, delivery, value creation, staff motivation, education empowerment, and partnerships between all parties involved in the management of IT resources (Laud, and Theis, 1997). All these factors will enable an efficient IT function. IT managerial activities should be specified and

executed so as to help develop an effective IT management architecture for BPR (Boynton, Jacobs, and Zmud,1992). Benchmarking of IT function is very important as it helps improve areas along with description on the best way to improve it (Gordon, 1994).

#### The Effective Reengineering of Legacy IS

There must be a consideration of the current legacy system in place as this will be a good indicator of the nature and scale of the potential problems (Sherry, 2007). Re-engineering legacy IT is an important factor in creating an integrative IT infrastructure using latest technologies that support BPR efforts effectively (Towers, Business Process Reengineering: a Practical Handbook for Executives, 1994). The readiness of an organization is dependent on the training needs, surveys of application usage, operational deployment considerations and ability to identify application evolution trends (Tilley, 1996).

#### Efficient Integration of IS

Information System (IS) integration for BPR can be accessed through the various information systems linked for the aim of sharing consistent, accurate and complete information among business processes (DoD, 1994). IS integration enablers are communication networking and data integration (Teng, Grover, and Fielder, 1994). The successful implementation of IS integration is dependent on the level of integration between organization planning and IS planning the need for flexible action by subunits, systematic implementation, the level of interdependence between business units, and the degree of difficulty in designing and implementing systems with integrated data (Jackson, 1997).

* 1. **Failure Factors In Business Process Reengineering (BPR)**

### Human Resources &Capabilities Management / Skill Mix

The absence of expertise which includes lack of user experience, lack of development expertise and lack of application-specific knowledge, all contributes to BPR failure (Ewusi-Mensah, 1997)

### Cross Functional Coordination

BPR implementation requires coordination across different functional areas (Shanks et al, 2000). Cross-functional coordination can be enabled through project management structures such as a “Steering Committee”, consisting of senior management from different corporate functions, senior project management representatives and end user, so as to ensure appropriate involvement (Slater, 1998). Lack of coordination leads to delay in implementing the system (Yongbeom Kim et al, 2005)

### System Development/Software System Design

The process of implementing BPR is a careful one which requires precision planning, strategic thinking as well as negotiations with department and divisions (Bingi et al, 1999). The combination of hardware & software make BPR projects complex (Ryan, 1999).

### BPR Software Configuration and Features

BPR packages may be configured to fit an enterprise’s structure, business practices as well as work flow (Chalmers, 1997). Configuring the system involves making compromises and has limitations given the adaptability of the software and the effort involved (Davenport, 1998)

## Framework of Study

The technology-organization-environment (TOE) framework is an organization-level theory that explains that the three different elements of a firm’s context influence adoption decisions, and they include; technological context, organizational context and environmental context. According to Tornatzky and Fleischer,(1990), in the book, ’The Processes of Technological Innovation” described the process of innovation as stretching from the development of innovations by entrepreneurs and engineers to the adoption and implementation of those innovations by users within the firm. (Jeff Baker, 2012)

### Technological Context

This context includes all technologies relevant to the firm/organization as well as those in use in the firm and those available in the market place but not currently in use. The existing technologies in an organization are very crucial in the adoption process as they set limit on the scope (Collins et al.1988). Innovations that exist but not in use at the firm also influence innovation, types of innovation that exist outside the firm include, those of create incremental, synthetic, or discontinuous changes (Tushman and Nadler, 1986).

### Organizational Context

This refers to the characteristics and resources of the firm such as intra firm communication processes, firm size, linking structures between employees and the amount of slack resources. Mechanisms that link internal subunits of the organization such as product champions, boundary spanners and gate keepers promote innovation as well as adoption (Galbraith, 1973: Tushman and Nadler, 1986). Organic and decentralized organizational structures are associated with adoption and they emphasize teams, promote lateral relationships while communicating along reporting lines (Jeff Baker, 2012).

### Environmental Context

This includes the structure of the industry, the presence or absence of technology service providers and the regulatory environment. Intense competition, dominant firms within the value chain can influence other value chain partners to innovate and adopt. Jeff Baker, (2012) argued that with respect to industry life cycle, firms in rapidly growing industries have the tendency to innovate rapidly. The use of skilled labor and consultants or other suppliers of technological services fosters innovation (Rees et al, 1984). This framework presents both constraints and opportunities for technological innovation (Tornatzky and Fleischer, 1990).

### The Technology-Organization-Environment Framework in Research

TOE model has broad applicability as well as possesses explanatory power across context such as technological, industrial, and cultural contexts. This model explains the adoption of

inter organizational systems, e-business (Zhu et al. 2003;Zhu and Kraemer 2005; Zhu et al, 2006b;Zhu et al, 2004), electronic data interchange (Kuan and Chau, 2001), and a broad spectrum of general IS applications (Thong 1999). In most of the empirical studies that test this framework, researchers have used slightly different factors for the technological, organizational and environmental contexts (Jeff Baker, 2012).

Technological Innovation Decision Making

**External Task Environment**

Industry Characteristics and Market Structure

Technology Support Infrastructure

Government Regulations

**Organization**

Formal and Informal Linking structures

Communication Processes

Size Slack

### Figure 1: The technology-organisation-environment framework ( Jeff Baker, 2012)

**Technology** Availability Characteristics

After the review of literature on TOE and on the critical success factors, below is the deduced framework;

**Success Implementation of BPR**

**Organizational Context**

Management Competency & Processes

Quality Culture Change Management

**Environmental Context**

Project Management

Organizational Structure/ Teamwork

### Figure 2: The Technology-organization-environment framework adapted from Jeff Baker, 2012

**Technological Context**

IT Infrastructure

### BPR Techniques

Modeling of BPR helps to exemplify the flow of information as well as the information itself in an organization with the use of tools such as simulation and conceptual framework (Gunasekaran and Kobu, 2002). It is crucial that studies are made on the existing and suppositious structure of business processes and this is from a systems perspective of modeling. A review of BPR modeling tools and techniques has been made and it consists of simulation models, object-oriented model, network model, integration definition model, conceptual model, and knowledge-based model. For the purpose of this study, only network model will be discussed (Gunasekaran and Kobu, 2002).

### Network Models

This is a methodology used for tracking, measuring, mapping and managing commitment where necessary in the business processes. (Gunasekaran and Kobu, 2002) Program Evaluation Review Technique/Critical Path Method is used by managers to plan projects requiring sequential activities. Furthermore, PERT/CPM charts identify the flow charts, the order of steps used when monitoring time and cost in the project as well as the time required to complete all task in the project (Gunasekaran and Kobu, 2002). High level Petri-net is used when carrying out BPR analysis and modeling. The ability to model distributed, asynchronous, concurrent and parallel systems with the use of graphical and mathematical modeling tool are known as Petri net. Its application covers different disciplines ranging from construction, engineering, business, mathematics and even the judiciary system. Guides on the application of the framework in BPR setting have been developed and the approach is known as ‘What’, ‘How’ and by ‘Whom’. Three stages must be completed using this approach such that a precise Petri net model of the existing ‘As-Is’ or recommended ‘To-be’ situation is attained. The verification of the accuracy and estimation of the performance of the redesigned business process is based on the Petri net model (Verand Aalst, W.M.P. and Vanhee, K.M.,, 1996). Petri net has a limited modeling capability due to its complexity and lack of user-friendliness for real-life re-engineering situation, however, this results in more accurate modeling considering the energetic activities of the system (Gunasekaran and Kobu, 2002).

### CHAPTER THREE-RESEARCH METHODOLOGY

The BPRM framework was developed as an outcome and has served as a basis for the research proposition. It will be put to test through a structured research methodology. The aim of this chapter is to describe the methodology used in the research project.

### Philosophical Assumptions

There must be a philosophical basis of the assumption of a research be it qualitative or quantitative (Myers, 1997). In qualitative research, a number of philosophical assumptions are present and they include interpretive, constructivist/transformative knowledge, positivism and critical studies (Orlikowski,W.J., & Baroudi, J.J, 1991).

The interpretive study assumes that meaning of situations or issues that occur in the world is based on how participants perceive the happenings and not the already available realities (Myers, 1997).

The positivist study assumes the presence of relationships as well as reality within a given context, which is measurable using some attributes that are self-reliant of the researcher (Orlikowski,W.J., & Baroudi, J.J, 1991). The objective of the research can be achieved using structured instrumentation as well as having a broader view of the setting from one step to another so as to have an in-depth knowledge of other settings. The criteria for positivist study include several steps; First of all, the investigation should be done from the participant’s viewpoint without the interference of the researcher. Secondly, there should not be an addition to the understanding of the situation. That is to say, it must be carried out in its natural setting. Lastly, the understanding between the researcher and the participants should be in a cultural and contextual situation (Chen, 2014).

Critical studies assume that there is a consistent process of the social state reproduced by the people (Myers, 1997). The objective of this philosophical assumption is to release the restriction attached to the current situation that is considered to have a deep meaning as well as the difficulty involved in handling for any person (Orlikowski,W.J., & Baroudi, J.J, 1991).

### Qualitative Research Methods

According to Myers, 1997, a research method is an approach used to inquire the movement from the core philosophical assumption to the design of the research as well as data collection. Four research methods are introduced in qualitative research and they include grounded theory, case study theory, ethnography, phenomenological, and narrative research method.

A case study is a method of inquiry found in most fields. It analyzes the occurrence within a specific setting by making use of different techniques for the collection of data and this varies from one person, group or organization (Kaplan, B., & Maxwell, J.A , 2005). This is suitable for IS research as the aim of IS research is to study information systems in an organizational context (Myers, 1997). A research objective is best examined when in its natural setting by researchers being the observers and not participants. A key characteristic of a case study is that more effort is invested into the study by the researcher, with the better the authenticity of the result achieved (Benbasat, I., Goldstein, D.K., & Mead,M., 1987). A case study can either be positivist, interpretive or critical. It all depends on the assumption used. (Myers, 1997).

### Data Collection

There are three data collection methods in qualitative research: observation, open-ended interview/questions, text or image data (Kaplan, B., & Maxwell, J.A , 2005).

In the observation method of data collection, the researcher is an active observer rather than being a docile observer. The researcher can be part of the participant’s meeting so as to directly inquire and log the activities as they happen as well as get the viewpoint of the participants and the explanation at the spot and not memorize the data from another source which could be secondary resource (Kaplan, B., & Maxwell, J.A , 2005).

Interviews are used in qualitative research so that the nature of the research is reflected by asking questions without giving a predetermined sequence but by asking questions with no particular sequence to answering the questions (Sofaer, 1999). The interview process imitates the real opinion of the participants, which is not restricted to the use of a structured set of interview questions, as seen in the quantitative research (Kaplan, B., & Maxwell, J.A., 2005).

Text and image data include novels, magazines, photographs, and documents or published journals (Kaplan, B., & Maxwell, J.A., 2005).

### QUALITATIVE RESEARCH IN THE STUDY

The case study method of research is used among other research methods in qualitative research in order to understand how participants see the critical success factors in BPR and how it has helped in achieving an effective business process. The data collection method used is open-ended interview as text/ document data collection method, which is used as a background description of the study. The philosophical assumption used in the study is the interpretivist study.

### Philosophical Assumption in the Study

Interpretivist study is applied in the study so as to obtain the truth as well as the experiences on how BPR process is used in the registrar’s office while considering the CSFs (Chen, 2014).

Research Strategy

Case study strategy has been selected for this research. According to Perry et al, 1998 using the case study as a research strategy and prior knowledge of the literature can be useful in designing the study as well as analyzing findings. The use of qualitative research was used for this research as it seemed more suitable to inductive approach.

### Data Collection Method in the Study

Semi-structured interview as data collection was done. According to Saunders et al, factors that led to the consideration of this selection include:

* + - * Creating a more personal relationship with the interviewees which help to acquire a higher response rate than questionnaire and also ensure that the right person is answering the questions
			* Being efficient in handling the limited time to collect the data and the challenges in ensuring the interviewee’s availability (2000)

A survey would have been preferred to aid data collection and increase the validity of findings. Unfortunately, lack of a large sample of respondents made it impossible, hence the abandonment.

### Theoretical Sampling

Since the case study is the registrar’s office of the American University of Nigeria, six persons were selected as interview samples.

### Data Collection Process

The office of the registrar was approached for participation in the research through the registrar, who is the head of the department, to secure agreement for the interviewee’s involvement and participation. Visits were made to the registrar and the conversations lasted between 10-20 minutes. The interviews consisted of the following:

* + - * Introduction of the thesis author’s identity
			* Purpose statement of the study
			* Required interaction and time needed from each participant
			* Assurance of full anonymity (if requested)
			* The successful conversation with the registrar led to the thesis author to study the BPR implementation projects and interaction with the participants

### Organization-Registrar’s Office

The registrar’s office is a department under the office of the provost in the university, whose goal is to provide services such as class validation, degree audit, transcript issuance, certificate issuance, add/ drop, override request etc. to both students and faculty. These activities have been going on for a while now but some of the processes have not been functioning properly due to challenges from the system. Up until 2014, Banner, a software database application which supports a wide range of function; financial aid, registration, grades etc, was used to carry out business processes in the registrar’s office. Two years ago, an external consultant adopted the Open ERP system and that has been in use till date.

### Interviewees

**Registrar**- The head of the department has been in this role for about 10 years and oversees the activities carried out in the office as well as ensures that the entire task is properly executed. He reports to the provost on issues relating to faculty and students with respect to academic matters. Experiences include banner system implementation and Open ERP implementation as associate registrar.

**Assistant Registrar 1**- This is an experienced personnel on student life. The assistant registrar has 2 years’ worth of experience with resident life and has spent 8 years in the registrar’s office. The assistant registrar is experienced in banner system implementation as well as Open ERP, hence is very well versatile in cross-departmental business processes. For the needs of the project, the assistant registrar was assigned degree audit and transfer credit.

**Records Analyst**- The records analysts include personnel experienced in filing students’ documents and knowledgeable in banner systems. They support administrative communication between students and registrar. The analysts’ activities include; transcript issuance, certificate issuance and NYSC deployment exercise.

**Administrative Assistant**- This staff has experience in receiving and welcoming guests in the department with no prior knowledge on banner systems. The person is experienced in Open ERP systems. Activities include but are not limited to add/drop, transcript issuance.

**Assistant Registrar II**- Personnel with over 9 years’ experience in handling academic issues. His tasks include class validation, language proficiency recommendation for students etc.

**Bursar**- The bursar is an accountant with over 15 years’ experience in the field. Responsibilities include ensuring that students make all payment before commencing any activity on campus, including transcript and certificate issuance.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Number of Interviewee(s) | Identification | BPR Implementation | Role in Project | Date of Interview and Duration |
| 1 | O | BPR Implementation | Registrar (oversees all the activities inthe registrar’s office) | April 10th - 50 mins |
| 2 | P | BPR Implementation | Assistant Registrar (ensures that, in the absence of the registrar, He is incharge) | April 13th - 15 mins |
| 3 | Q | BPR Implementation | Administrative Assistant (Saddled with the responsibility to receive guests, attend to students with add/drop, issuetranscripts etc.) | March 25th - 30 mins |
| 4 | R | BPR Implementation | Records Analysts (Keeps students’ record as well as attend to all enquires on NYSC,etc.) | April 10th - 20 mins |
| 5 | S | BPR Implementation | Assistant Registrar (responsible for ensuring that all transfer students have their credits transferred as wellas degree audit) | April 5th - 40 mins |
| 6 | T | BPR Implementation | Bursar(Accountant) | April 14th 10 mins |

**Table 1: List of Interviewees**

### Interview Design

For the purpose of keeping the interview in check, a simple design is used. Introduction

* + - * Appreciate the respondent for participation and introduce the researcher.
			* Ensure a comfortable environment is achieved so that there will not be distractions for the duration of interview
			* State the purpose of the interview and the overall study
			* Inform the interviewee that (s) he is not obligated to give out any information, and that it is his/her choice to do so
			* Inform the interviewee that it is also his/her choice to disclose any identity information and agree upon decisions
			* State that the interviewee has the right to reply or not to reply to questions as well as end the interview whenever they desire

(Interviewee’s involvement in the project)

* + - * Briefly, explain individual’s role in the organization
			* Briefly, explain any relevant experience in BPR implementation projects Critical Success Factors
			* Ask the interviewee about what factors seemed relevant Conclusion
			* Inquire from the interviewee if there is something (s)he would like to add with respect to CSFs
			* State informally the end of the interview
			* Discuss details of further contact if need be for clarification and communication of study results
			* Repeat what was agreed concerning usage of data collected
			* Appreciate the interviewee about participation
			* State the formal end of the interview

### Interview Process

As shown in Table 2, the number of interviewees was six: all participants were staff members of the university. Therefore, in all cases, the formal language used for communication was English. The interview ranged from 10-50 minutes and this was due to the flexibility of the semi-structured interview questions. The interviewer was careful in maintaining the scope, thus not allowing the interviewee to deviate from the intended track to information not relevant to the topic. The interviewer, whenever necessary, would explain terminology that the interviewee seemed unaware of so as to aid the comprehension of the question posed.

### As Is and To-Be

An “As-Is” process is an existing or current state of a process. This process is the combination of people, processes, data, and technology that currently perform the tasks and functions of the system or process.

A “To-Be” process is the one which is developed on the basis of the analysis done on the current system/process which needs to be changed. This system is also a combination of people, processes, data, and technology that will perform the required tasks and functions of the system or process.

### Summary

The objective of this chapter is to inform the reader about the research methodology chosen. The paradigm of research followed a positivism view and an inductive approach. A qualitative study was used with the case study approach as well as semi-structured interviews for data collection. The interview process, design, and discussion on reliability and validity of result were discussed. The next chapter deals with linking the data to the proposition and interpreting the findings. Qualitative data analysis and the use of BPRM framework will be applied.

### CHAPTER FOUR-RESULTS

### INTRODUCTION

This chapter presents the collected data from the semi-structured interviews and their analysis in order to reach the conclusion of the study. BPRM framework was adopted to support the analysis. The research questions were used to guide the data analysis. The critical areas include having the stakeholders in the picture as well as the critical success factors in BPR implementation projects in institutions of higher learning. According to the literature review, the iron triangle and the critical success factors as prepared by previous researchers was targeted at a much narrower focus, whether they are applicable to the registrar’s office at the American University of Nigeria.

## PROCESS RE-ENGINEERING FRAMEWORK

### Process Re-engineering Framework Application

The case study was directed at a reasonably sized, university where most of the activities carried out and are done on the Internet and on Open ERP. Class validation, degree audit, certificate issuance, transcript issuance, add/drop, overrides, transfer credit etc. are all done every semester and it involves the students, the instructors, program chairs (Heads of Department), deans and the registrar’s team. Students, faculty and the registrar’s team are all faced with the challenge of having all their activities fixed properly such as degree audit, transfer credit etc. When students are not properly guided on the courses to take, especially on the major advised electives, they run into some setbacks that lead to the students not meeting their degree requirements. Transfer of credit for transferred student can be challenging as some schools do not respond in time to the request of the registrars’

team on the degree audit, transcript and course description. This attitude has led to inefficiency, time consumption, and low productivity. Therefore, in order to address this concern, the following framework is used:

### Initiation

We identified the degree audit process to be reengineered and an understanding of the process was established by interviewing the registrar’s team. However, after observing the degree audit process, a series of meetings were conducted to get stakeholders’ feedback as well as document the process.

### Analysis

Detailed analysis of the task and procedures involved in all the activities carried out in the registrar’s office was made including detailed evaluation of the process. The process model was designed, which identified some issues. A recommendation for the reengineered process was made during a meeting with registrar’s team.

# Description of Activities

### 4.1.1. Add & Drop

This is a paper form of course registration used by students after online registration is closed. With this form, students can either register for an additional course or drop out of a class. Students pick up the form from the registrar’s office after online registration is closed. Then, courses are added after the faculty has accepted the student by signing on the form. The same is applied when the student decides to drop a course; the form is sent to the registrar’s office where the course is added or dropped.

### Certificate Issuance

The office of the registrar sends emails to students when their diploma is ready for pick up. Student can specify pick up method; either in person, on behalf of the student or through courier (FedEx). Financial clearance must be obtained from the bursar. If pick up is in person, the student signs on the photocopy of the diploma and on the out register. If pick up is through courier, the student notifies the registrar’s office in an email, and makes payment either through their bookstore account or bank payment. If it’s a bank payment, the student has to attach the teller, while if payment is via their bookstore account, they will receive a confirmation email from the bursar before dispatching. If the payment is made by someone else on behalf of the student, the student notifies the registrar’s office. The registrar’s office then responds by requesting that one of the following must be provided before certificate is issued: driver’s license, national identity card, or international passport. Finally, the recipient signs on the out register and the certificate is issued.

### Class Validation

The registrar’s office sends an email to faculty to check class roasters on Open ERP so as to determine the number of registered/unregistered students. The faculty informs/ notifies the registrar’s office on the student registered and in class as well as those registered and not in class for the purpose of reconciliation. If the student is attending class and is not registered, such student is asked to stop going to class until payment is made, and if the student is not attending and is registered, an email is sent to the student to know why classes are skipped and is therefore advised to drop the course.

### Transcript Issuance

This request is made by the student through an email to the registrar and the bursar is copied. If the student account is funded, transcript charges will be made. If it is not through payment, a bank payment is made and the teller gets attached and sent to the bursar, who sends a confirmation email to the registrar that said student has met the financial requirements. The transcript is printed, and pick up could be either in person or shipped. If a student chooses to pick up their transcript in person, a form must be signed in the office, If the transcript is shipped, a detail address is needed i.e. the recipient’s address and a reachable phone number. The transcript is then sent through FedEx, and this takes about 4- 5 working days.

### Degree Audit

The registrar sends email to students eligible for graduation to apply. All required documents are sent to the registrar from the student. A verification process takes place to ascertain students with complete requirements. If the student does not meet the requirements, an email is sent to reapply upon completion of the requirement and if the requirement is met, the student’s document is sent to the dean’s office. The HOD/Program chair sits with each student, who painstakingly goes through the major requirement and, upon satisfaction, signs the application form. The dean also comments on the application form based on the feedback from the HOD/Program chair. This application form is sent back to the registrar, who forwards it to the Provost for final approval. The registrar clears the student after In Progress courses are passed.

### Credit Transfer

The admission department admits transferred students and their documents are sent to the registrar’s office. Upon receipt, the registrar requests for the student’s transcript from their previous university. The transcript is sent to the HOD/Program chair through the dean’s office, and the transcript is given to faculty who evaluates individual courses per program for possible transfer and sends it back to the program chair for approval. Final approval comes from the dean and the transcript is sent back to the registrar’s office who updates the student’s record.

# Interview Findings & Analysis

The respondents will be referred to where necessary using the following abbreviations O, P, Q, R, S, T.

### Critical Success Factors Top Management Support

According to respondent O, top management commitment to the implementation process is very crucial to the success of the project. In addition, proper training of team members and better comprehension of the process is required at the initial stage for easy performance and transition.

### Organizational Structure

Respondent O was satisfied with his team; hence efficiency and effectiveness was achieved despite students and faculty involvement. P and S applauded the team spirit of team members and the competence of the project manager respondent O.

### Project Management

Project management was acknowledged as highly efficient and relevant to the successful outcome of the processes. O achieved all the needs and objectives as a result of the well laid out specification document for the task, and even when challenges occurred, they were resolved within a short period, said P on the issue of transfer of credit, as the adequate use of methodology was employed. Respondents R and Q were both pleased with the project.

### IT Infrastructure

O stated that this was a major critical success factor and was concurred by all respondents, based on the specification document which had rich information and resources. The transition from Banner to Open ERP has been fully actualized. Although, some corrections had to be made so as to accommodate other processes such as the degree audit, which is currently done manually.

### Change Management Program /Culture

Although there is a necessity for change and alteration, there is a lot of resistance. For example, the faculty members at the university do not adhere to the policies in the school catalog/handbook, which houses all the required courses. The catalog includes the times and levels at which these courses are to be taken, hence the overrides into classes remain a bottleneck, says all respondents. However, some faculty members wish to adhere to the policy but are compelled by top management to let students into classes, thereby altering the already designed specification of the process/study plan. For instance, a sophomore/200 level student is expected to take courses at his/her level but instead are sometimes enrolled into classes meant for juniors/300 level or seniors/400 level, just for the purpose of increasing class enrollment. At times, students are at the risk of enrolling into classes not required either as general education courses or major requirements thereby adding to the credit hours as well as extended stay on campus.

Management needs to step in to discourage this activity, says respondent O, as it breeds more problems toward the end of the student’s stay in the university; extended stay on campus.

### 4.2.2 Re-engineering

The features and the functionalities of the reengineered process were designed, describing the As Is and the To-Be of the activities. This describes what should be in place in order to achieve efficiency, effectiveness, and quality. The participative approach used in this design helped in capturing user’s concern as well as feedback.

Credit Transfer-Transfer Student

Admits

Students

Receives

Transcript & Course Description Request

Send Transcript

request to Previous University

Receives

Admitted Transferred Student

Request

Transcript & Course Description

Receives

Transcript & Course Description

Sends Transcript

& Course Description

Receive

Approved Evaluated Transferred Document

Update

Student’s Record with approved Course

End

Receives

Transcript & Course Description Request

Send Transcript

& Course Description to Registrar’s Office

Receives

Transcript & Course Description

Send Transcript

& Course Description to chair

Receive

Evaluated Document

Send Evaluated

Document to Dean for Approval

Receive

Approved Evaluated Document

Send Evaluated

Document to the Registrar’s Office

Receive

Transcript & Course Description

Send Document

to Instructor for Evaluation

Receive

Evaluated Document & Comment

Send Evaluated

Document to Dean’s Office

Receive

Document & Evaluate for Possible Transfer

Receive

Evaluated Document for Approval

Approve & Send

to the Dean’s Office

Send Evaluation to Chair

Admission

Instructor

Chair

Dean’s Office

Previous University

Registrar’s Office

Student

**Figure 3: Credit Transfer-As Is**

Dean

Faculty

Chair

Previous University

Registrar

Credit Transfer

Request

Transcript

Receive

Trancript

Send Transcript

to registrar

Receive

Student’s Application

Apply for

admission a semester ahead

End

Receive

Transcript

Request Course

Description from previous university

Receive & Send

Course Description to Chair

Receive

Transfer Documents from the Dean

Send

Transferred Courses to Student

Receive & Send

Course Description to registrar

Send

Transcript to Faculty for evaluation

Receive

feedback from Faculty

Send Transfer

Form to the dean for approval

Send

Evaluation to Chair

Approve

Transferred Courses

Send Transfer

Doc to Registrar

Receive Transferred courses

Receive Transcript and evaluate for possible transfer

Receive Transcript &

Course Description

Send Transcript to Admission

Receive

Transcript Request

Student Applicant

Admission

**Figure 4: Credit Transfer To-Be**

Dean

Bursar

Registrar

Transcript Issuance As- Is

Receiive

If school Confiirmatiion of

account

payment from

bursar

Request

Transcript

If bank payment

Receive

request for address detail

Send

address detail for courier

Prepare

transcript for pickup

If Pickup is in

person

Notify FedEx of

shipment

Receive

Transcript Request

Receive

Confirmation email

If pickup is via

courier

Receive

address detail

Request

address detail for courier

Receive

Transcript Request

Verify availability

of funds in student’s account

Receive teller

from student

Send

Confirmation mail to registrar

End

Receive Notification of shipment

Sign the out register and collect transcript

Send teller to bursar

Choose

payment Method

Send transcript to desired address

Student

**Figure 5: Transcript Issuance As-Is**

FedEx

Registrar

System

Transcript Issuance To-Be

Student

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Receive notification |  |  | Pickup Transcript & Ship |  | End |
|  |  |
|  |  |

**Figure 6: Transcript Issuance To-Be**

Fill

Transcript Request Form

Notify

If Pickup is in Registrar

person

Yes

Check student’s

account for availability of funds

Process

Transcript

 If

Courier

Request

Address Detail

Notify

No student to fund account

Receive

notification of transcript pick up

Sign out-

register & collect Transcript

Receive Address

Detail

Notify FedEx

Receive Notification to fund acct

FedEx

Class Validation As-Is

Registrar

**Figure 7: Class Validation As-Is**



If

unregistered & attend class

Inform unregistered students to stop attending class until payment is made

Request

Class Roaster check

If registered &

not attending class

Inquire from

student and advise to drop course

End

Check No of

Registered & Unregistered Students

Inform Registrar on No. of registered students in Class & No. of registered not in class

Receive response from faculty on class roaster

Faculty

Class Validation To-Be

Faculty

**Figure 8: Class Validation To-Be**

Notify

registrar on student’s turn out to class a week after registration

Inform unregistered

students to stop attending class until

Receive

notification from faculty on student’s turn out to class

payment is made

End

Inform

registered student who do not attend class

to drop

Registrar

Registrar

Add & Drop As-Is

Student

**Figure 9: Add & Drop As Is**

Receive form

from faculty

End of

Online Registration

End

Add student to class on open erp

Send signed form to the registrar

Meet faculty to add course

Pick up Add &

Drop form from

registrar

Sign student Add & Drop form

Receive student’s Add & Drop Form

Return form to student

Faculty

Registrar

Add & Drop To-Be

Student

**Figure 10: Add &Drop To-Be**

Meet faculty to

add course

End of

Online Registration

End

Sign student Add & Drop form

Add student to class on open erp

Pick up Add &

Drop form from

registrar

Return form to student

Receive student’s Add & Drop Form

Send signed form to the registrar

Receive form from faculty

Faculty

# Interpretation of Findings

### Transcript Issuance

Transcript issuance (Figure 5) was re-designed to eliminate the repetition of the processes carried out by the bursar and the registrar as shown in Figure 6. The identifiable critical success factors in this activity include: proper alignment of IT Infrastructure & BPR strategy, increasing the IT function competency (use of the system to merge the processes of the bursar and that of the registrar), and lastly the efficient integration of IS. Challenges include lack of attention and support from top management.

### Class Validation

Figure 7 was re-designed to expedite the processes, such that the faculty informs the registrar on the number of students in class so as to avoid having unenrolled students in class as well as the enrolled but in class students, so as to achieve efficiency with student’s enrollment into classes. The CSFs identified include; quality culture and change management. Some of the challenges encountered include: lack of human involvement, faculty members did not give real-time feedback to request, as well as the management’s lack of support and commitment to BPR, hence the failure.

### Credit Transfer

The re-designing of Figure 3 was very crucial as it pertained to the progress of the student upon transfer, hence the recommendation in Figure 4, to start the process a month before orientation for the proposed semester. The critical success factors were quality culture, each team member felt very responsible and accountable while promoting teamwork and this was clearly seen within the schools: faculty, chair, and dean. Human involvement, effective BPR teams, adequate identification of BPR values.

Challenges included lack of support from management to the admissions department, not receiving application requests two (2) weeks to orientation. The danger was that transferred students eventually spent more time by unknowingly retaking transferred courses/credits due to the transfer processing time.

|  |
| --- |
| **RESPONDENTS** |
| **CRITICAL SUCCESS****FACTORS** | O | P | Q | R | S | T |
| **MANAGEMENT COMPETENCY/PROCESSES** | YES | YES | YES | YES | YES | YES |
| **ORGANIZATIONAL****STRUCTURE** | YES | YES | INDIFFERENT | INDIFFERENT | YES | INDIFFERENT |
| **PROJECT MANAGEMENT** | YES | YES | YES | YES | YES | YES |
| **IT INFRASTRUCTURE** | YES | YES | YES | YES | YES | YES |
| **CHANGE MANAGEMENT** | YES | YES | YES | INDIFFERENT | INDIFFERENT | INDIFFERENT |
| **QUALITY CULTURE** | YES | YES | YES | YES | YES | YES |

**Table 2: Tabular Representation of CFSs**

**CHAPTER FIVE-DISCUSSION**

# Critical Success Factors from Case Study

### Change Management/ Culture

Presence of change management program with an emphasis on training and education was discussed. This was further highlighted that this process should start at the very initial commencement of the process. One of the shortfalls of this was resistance to change. Where change management program is planned and successfully executed, there will be minimal resistance.

### Organizational Structure

The synergy among teams was critical to the framework discussed; teams were rated high in terms of business process knowledge, despite being at different locations, teamwork was remarkable when team members were not carrying out duties assigned due to other assignments, and more time was allocated to increase collaboration. There is lack of effective communication between the senate, curriculum committee and the registrar’s office.

### Project Management

According to all respondents, there are benefits from effective project management in order to save time. It is important that there is a clear understanding of ideas and clear definition of goals from top management.

### IT Infrastructure

Due to the time of introduction of ERP systems, there has been a major challenge in addressing students’ needs as well as faculty. It was very important that this was addressed so that the goals are not jeopardized.

### Top Management Support

The CSFs were identified prior to the BPRM framework discussion by most of the respondents. Lack of support from top management has been the challenge and has created the feeling of insecurity among some persons and, to some others; a feeling of motivation from top management has increased confidence.

### Management Competency & Process Structure

The factor according to most respondents suggested that it has been a challenge in ensuring proper business process as the right information/processes are not readily implemented.

# CHAPTER SIX-CONCLUSION

### INTRODUCTION

Looking at the educational sector within the context of this research, much of IT technology has not been used nor BPR systems/processes. Some BPR implementation has failed in the business world and this has led researchers to study the critical success factors. The aim of this research was to identify the critical success factors in BPR systems implementation in higher institutions of learning.

The literature review helped to explain in detail the research done on critical success factors. A research question was formed, qualitative approach was used for data collection and analysis, and data collection was done using a semi-structured interview. The result of the study is presented in the next section, with implications for practitioners and the academia, the study’s strengths and weaknesses and recommendation for future research.

### Answering the Research Questions

What are the critical success factors in implementing projects?

Are the identified critical success factors from the literature review relevant for the successful implementation of BPR projects in institutions of higher learning in Nigeria.

Sub-questions were developed and the following conclusions were drawn:

This sub question explains the BPRM framework developed in the literature review. A list of CSFs was developed from previous researchers, and its applicability in the registrar’s office at the American University of Nigeria was examined using data collection and analysis. The set of CSFs was affirmed as crucial for a successful implementation of BPR.

### BPRM Implications

From the literature review, it can be deduced that there has not been a research stream on BPR implementation in institutions of higher learning in Nigeria. The drive for this research was to provide the first step in expanding the existing research on BPR implementation projects to include the educational sector in Nigeria. In order to expand research on this specific topic, it will be needful to put the existing framework to test, to ascertain its applicability with the assistance of other studies of interpretive character.

### Practical Implication

The result of this study can provide important insights to practitioners involved in BPR implementation. Key issues that should be addressed as a result of this research include the following:

* Change management program. In addition, BPR should be well defined and implemented at the very beginning of the project and involve all users so as to achieve optimum results.
* Top management’s support for the project at the very beginning is required as an effort to keep them abreast and raise their commitment as well as interest in the

project is very crucial for the successful implementation. When this is done, it can save the project a lot of trouble and raise the motivation in the organization.

### Strengths and Weaknesses

This research study was based on the literature review so as to build a theoretical background on the relevant issues. Due to lack of research work on this topic, there was a limitation on articles used on BPR implementation CSFs. A more detailed framework could have been developed but time constraints made it impossible to achieve.

This case study could have included other institutions with an existing BPR system so as to increase validity but due to time constraint it was difficult to achieve. Another drawback was that the project team members that participated in the interview were from different levels. It would have been more focused and more valuable had they all been at the level to respond to the research question from a stakeholder’s viewpoint.

### Future Research Suggestion

Suggestions would be that there be an expansion of the present study in terms of data collection and analysis. The study could be developed further to have data from other sources such as questionnaires, project documentation, further interviews, surveys etc. This can provide the research with a much stronger supported statement and validated result (Sofronis, 2009).

The applicability and role of the CSFs in BPR implementation as discussed in the literature review should be discussed at the different stages of BPR project lifecycle and from the

viewpoint of the stakeholder. This will provide a narrower focus so as to address the specific audience in the academic and practitioners’ world.

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# APPENDIX

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| --- | --- |
|  |  |
| Individual Journal Searches | Database Searches |
| Critical Success Factors BPR Implementation | Critical Success factors "And" Enterprise Solution |
| Critical Success Factors BPR | Critical Success factors "And" BPR |
| Success Factors BPR |  |
| Success Factors Enterprise Systems |  |
| ERP Implementation Success |  |

**Table 3: Searched: Citation, Abstract and Title**

|  |  |
| --- | --- |
| Critical Success Factors | Sources |
| Change Management | Sherry Finney & Martin Corbett (2007) |
| Organizational Structure/Teamwork | Sherry Finney & Martin Corbett (2007) |
| Project Management | Al-Mashari and Zairi (2000) |
| IT Infrastructure | Al-Mashari and Zairi (1999) |
| Management Competency/ Processes | Bhatt (2000) |
| Quality Culture |  |

**Table 4: Summary of Literature Review**

