

**A STUDY OF THE FACTORS IMPACTING IMPLEMENTATION
OF BUSINESS PROCESS REENGINEERING AT THE KENYA
PORTS AUTHORITY**

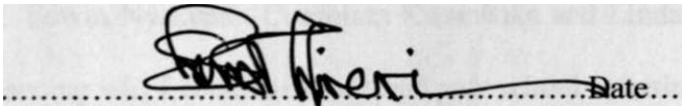
MIRERI, SHEM O. J.

**A Management Research Project, Submitted In Partial Fulfillment Of The Requirement, For
The Award Of The Degree Of Master Of Business And Administration, School Of Business,
University Of Nairobi**

2010

DECLARATION

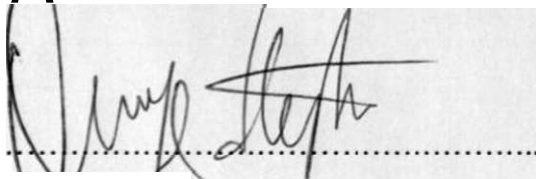
I, the undersigned, do declare that this is my original work and has not been submitted to any college, institution or university other than the University of Nairobi for academic credit.

Signed  Date.....

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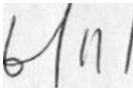
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This project has been submitted for examination with my approval as the appointed supervisor

^A
Signed  Date.....

Nyamwange Sy^nserial

Lecturer. Department of Management Science.



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DEDICATION

This work is dedicated to my dear wife Mrs. Teresa Oyaro and our loving children Christine Moraa, Edwin Nyakundi, Consolata Kwamboka and Linda Carolyne Mokeira. Thank you for understanding why I could miss to attend your school - visiting days.

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MAY GOD BLESS YOU ALL.

ABSTRACT

This study examined the factors which have impacted on the implementation of BPR at the Kenya Ports Authority through five specific objectives: to establish the impact of change management; to determine the involvement of top Management; thirdly to show how organizational structure has affected implementation of BPR; to study how Project Planning and Management impacted on BPR implementation; and finally the impact of IT infrastructure as a BPR enabler.

Using a sample size of 41 employees from the KPA workforce, data was collected using closed and open - ended questionnaires and analyzed using statistical inferences with frequencies, means, standard deviations and tabulations through the Statistical Package for Social Sciences (SPSS).

The findings from the study indicate that a majority of the respondents seem not to link new processes with BPR implementation. Although a majority of them are aware of the existence of BPR within KPA, they feel that any new project at the port is a preserve of a few people who could be related to top management instead of involving the entire staff. The findings further indicate that change management issues have not been well articulated at the KPA since some sections have not been reinforced with more people and that not all systems have been harmonized with BPR.

The organizational structure has also not changed substantially to reflect new roles and responsibilities which come along with BPR implementation. It was also found out that although project identification, feasibility studies, design, allocation of resources and BPR methodology are well integrated with other improvement techniques such as TQM and benchmarking, customer research, monitoring and evaluation were not successfully carried out. However it was found out that top management is involved and committed to making BPR implementation a success story and that IT, as a BPR enabler is well integrated in the implementation process.

LIST OF ACRONYMS

UNCTAD:	United Nations Conference on Trade and Development
TQM:	Total Quality Management
BPR:	Business Process Reengineering
IT:	Information Technology
CI:	Continuous Improvement
KPA:	Kenya Ports Authority
TEU:	Twenty - foot Equivalent Unit
CCTV:	Central Circuit Television
COMESA:	Common Market for Eastern and Southern Africa
3Cs:	Customers Competition and Change
3Ss:	Signals. Symbols and Systems
IWW:	Internal Water Ways
IS:	Information Systems
KPLC:	Kenya Power and Lighting Company
SPSS:	Statistical Package for Social Sciences
Std. Dev	Standard Deviation
PPM:	Project Planning and Management

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CHAPTER ONE: INTRODUCTION

1.1 Background

Piaxao and Marlow (2003) observe that since the Second World War, Sea ports have been going through an evolution which the United Nations Conference on Trade and Development (UNCTAD) refer to as generations. The generation of a sea port reflects on whether the approach adopted by port authorities/operators in developing their activities is likely to be reactive or proactive. These activities start with the traditional ones (Cargo loading and discharging) and end up with the establishment of a wide range of logistics and value addition, developed in conjunction with industrial and commercial businesses. This generation of ports, classified as third generation, would be sufficient if the world economic growth pattern could be forecast with any certainty. Unfortunately, this is not the case as the external environment today comprises constant changes that are reflected in the high levels of market uncertainty. To cope with this uncertainty, sea ports should adopt a new logistics approach, Business Process Reengineering, which has been employed in other industries with sterling results.

Chase *et al* (2004) have defined Business Process Reengineering as 'the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary measures of performance such as cost, quality service and speed. The concept of reengineering has been around for nearly two decades and organizations have been implementing it in piece meal. It is often compared to Total Quality Management (TQM). The two concepts are compatible, the basic difference being that TQM emphasizes on continuous and incremental improvement of processes that are in control, whereas reengineering is about radical, discontinuous change through process innovation.

Piaxao and Marlow (2003) further note that efforts to improve the performance of organizations have been important since the start of the industrial era; where the first known and well - documented practitioners in the area of performance improvement were Adam Smith, Eli Whitney, Buggage, Frank and Lillian Gilbreth, F.W. Taylor, and Henry Ford. However, competition between organizations has increased as markets have become increasingly global and there are no signs that this trend will cease. The

increased competition will create an ever greater need for first - rate improvement methods that can stand competitiveness.

Chang and Powell (1998) observe that the business climate is driving businesses, large and small, towards a more rapid change as competition is no longer constrained by national boundaries; information is capital, skilled team - based workers are decision makers, and the management role is shifting from directing to coaching and team facilitation. The consumer is more discriminating, seeking high - quality, low - cost, rapid service. They argue that Business Process Reengineering (BPR) is a solution to business survival. Enabled by Information Technology (IT), and emphasizing on customer-driven, process-oriented management, BPR has delivered dramatic gains in quality, cost, speed and efficiency to some large organizations.

In order to achieve success, organizations must turn to results which include reducing annual costs, corruption, fraud and litigation; turning losses into profits; reducing the cycle time and lead times; and Improving Customer satisfaction. Organizations have reported dramatic benefits gained from successful implementation of BPR. However, not all organizations embarking on BPR projects achieve their intended results. Hammer and Champy (1995) have estimated that as many as 70 per cent do not achieve the dramatic results they seek. These results make the issue of BPR implementation important. Al-Mashari and Zairi (1999) point out that BPR has great potential for increasing productivity through reduced process time and cost, improved quality, and greater customer satisfaction, but it often requires a fundamental organizational change. As a result, the implementation process is complex, and needs to be checked against various impacting factors.

1.1.1 BPR and Port Operations

The port industry has been seen as a very traditional, sometimes old - fashioned environment, and one that reflects the reactive approach towards the implementation of new concepts. Being surrounded by an environment characterized by a high degree of complexity, where activities are carried out in a disorganized way, with high costs, inadequate customer services, lost opportunities and sub - optimization of resources, Piaxao and Marlow (2003) point out that the port industry must adopt a new attitude or else, it may be left behind whenever alternative transport systems can be designed. The

intra - European and intra - North American trades are good examples of geographical areas where the use of road and rail to move cargo can occur without the cargo going through ports.

Piaxao and Marlow (2003) further suggest that Ports should become more agile to be better able to compete successfully with each other while at the same time becoming key logistics elements of the transport chain. Such a change will enable ports to meet the future trends of supply chains insofar as time - based strategies to reduce inventory costs along the logistics pipeline are concerned, and to reduce both transit time in ports and lead times, thereby creating a greater utility and variety of the services being delivered. By increasing productivity, fixed costs per unit handled decrease and ports should be able to overcome the drawbacks of being a capital - intensive industry. Proper design, planning, organization and management can help ports deliver higher service levels and make better use of ports' inventory so that when providing a service to customers no undue delays (expressed in terms of wastes) will occur within the system. This will increase the ports' competitive edge and profitability. Consequently ports can win additional market share due to their increased efficiency.

Child (1991), as cited by Piaxao and Marlow (2003), proposes the BPR technique in order to help carry out radical changes in a port environment. He argues that the choice of this technique rather than total quality management (TQM), which reflects continuous improvement (CI) of the system, is explained by the fact that it is capable of bringing radical changes / innovation within such complex industries as ports. The use of this technique in other industries has resulted in cost reductions of about 80 percent an increase in quality of 50 percent, a reduction in cycle time of 50 percent, with 80 percent of the undertaking's complexity being solved.

Chang and Powell (1998) found out that in order for an organization to achieve the desired results of Cost efficiency, Quality improvement. Customer satisfaction and Process improvement, the BPR technique obliges the existence of Customer focus; Information Technology (IT); Employee empowerment and Strategic management. The Kenya Ports Authority has in place the four elements of Business Process Reengineering. However, it is not clear whether or not the KPA has implemented BPR as a performance improvement tool in its operations. This study endeavours to determine the factors

impacting on the implementation of Business Process Reengineering at the Kenya Ports Authority.

1.1.2 Overview of the Kenya Ports Authority

The Kenya Ports Authority (KPA) is a statutory body under the Ministry of Transport set up by an Act of Parliament in January 1978. It has with a board of Directors appointed by the Minister. KPA's vision is to be rated amongst the top twenty (20) ports of the world in terms of reputation and performance by the year 2010. Its core services are pilotage, towage, mooring, dry - docking, aids to navigation, maintenance of the channel and turning basin: Stevedoring, cargo handling; and Reception of cruise passengers (KPA, 2007).

The Old Port of Mombasa next to Fort Jesus was built in 1876 by the Portuguese navigator Vasco Da Gama, during the spice trade between the Arabian Gulf, the East African Coast and the Far East. As trade boomed, work on the Kenya - Uganda Railway started in 1895 from Mombasa. This led to the need for a new Jetty to handle larger ships bringing construction materials for the new Railway. As a result a new port was created at Kilindini Harbour in 1896. In 1944, there was a sudden increase in shipping and traffic as a result of Britain's wartime naval requirements in the Indian Ocean. With the coming of the container age, the port was modernized in 1975 to handle an increased growth of containers. The rapid increase in container traffic through the port of Mombasa prompted the KPA to extend the container handling operations upcountry with two inland container depots at Embakasi 1984, and Kisumu 1994. Cargo throughput increased from 13.28 million tons in 2005 to 14.4 million tons in 2006, indicating business transformation within the port. The authority's phased equipment modernization programme was started in the year 2000 at a cost of KShs. 5 Billion and concentrated mainly in the containerized cargo section (KPA, 2007).

The main competitors of KPA are the Ports of Durban, Djibouti and Dar es salaam. Durban boasts of an annual import, export and transshipment of 1.2 million TEUs; a land area of 1854 Ha; a shore line of 21 Km; 57 Berths and a rail network of 302 Km linked to the National Rail Network guaranteeing rapid movement of cargo. Around 80,000 to 90,000 containers move through the port monthly. The Port of Djibouti has a regular liner service connecting about 200 ports in 71 countries. It has a good performance and a high

productivity of approximately 28 moves per hour. It has a natural link with the populous Ethiopia, Sudan and the Great Lakes Region. It has an efficient I T system and has lately installed CCTV at strategic points. It is the most centrally located port in the COMESA region. This means therefore, that there is need for KPA to restructure its operational processes in order to meet the challenges posed by this competition (Our Ports, 2006).

1.2 Problem Statement

Organizations working in international competition are forced to develop new methods, intellectual approaches and structures in order to ensure competitiveness. In order to improve efficiency, it is not functions or hierarchies which are crucial, but the processes within an organization. This results in aligning organizations with basic processes and in renouncing of functions and hierarchies. Business process reengineering, (BPR), stands as a model for this. By concentrating on newly rethought business processes, at the end of which the customer stands, value is created for the customer.

Zhang and Cao (2002) have underscored the importance of flexibility to adapt to changing market needs and development of innovative cross-functional processes as being essential to BPR implementation success. They say that firms must make organizational structural changes from hierarchical to flat forms; management goals must change from being functional sub-optimized to global-optimization, process-oriented measurement, and employees work must change from being fragmented to team-oriented.

Majed and Mohammed (2001) have noted that most organizations are knowingly or not involved in BPR. It is the pressure of survival and the need to prevent complacency that prompts BPR. Motivation from the desire to close competitive gaps and achieve superior performance standards, prompt many organizations to embark on huge BPR projects.

In Kenya, various studies have been done focussing on different aspects of Business Process Reengineering: Thiga (1999) studied Business Process Reengineering at the Kenya Power and Lighting Company, while Mairura (2003) did the studies at the Teachers Service Commission. Owuor (2003) studied the use of IT as a facilitator of BPR. Kahigu (2003) did the enabling role of ICT in BPR at the Kenya Commercial Bank and recommended future studies to include additional factors which affect BPR in

financial and non-financial institutions. Atebe (2001) studied the effects of BPR on the business process cycles at the Kenya Power and Lighting Company; Kavate (2005) did the implementation of BPR by Gemstone dealers in Nairobi. These studies recommend that there is need for further research to be done on Kenyan firms to investigate:

- i. Methods adopted in BPR implementation;
- ii. The contribution of IT in BPR on Kenyan firms;
- iii. The factors specific to Kenyan firms that hinder BPR implementation and ;
- iv. The impact of corporate culture on BPR and ways in which it enables the change effort of reengineering.

It is evidently clear that no studies have attempted to research on the factors impacting on the implementation of Business Process Reengineering at the Kenya Ports Authority as pointed out by the Kenyan Researchers. This therefore became the subject of this study.

1.3 Research Objectives

The broad objective of this study was to establish how various factors have impacted on the implementation of Business Process Reengineering at the Kenya Ports Authority. However, the specific objectives were:

- i) To establish the impact of change management on the implementation of BPR at the KPA;
- ii) To determine the impact of top management involvement in the implementation of BPR at the KPA;
- iii) To show how organizational structure has affected the implementation of BPR at the KPA;
- iv) To study how project planning and management has impacted on the implementation of BPR at the KPA;
- v) To find out the impact of IT infrastructure on the implementation of BPR at the KPA.

1.4 Importance of the Study

The study provided an analysis of BPR and factors impacting on its implementation and will contribute both to its theory and practice.

This study achieved the following:

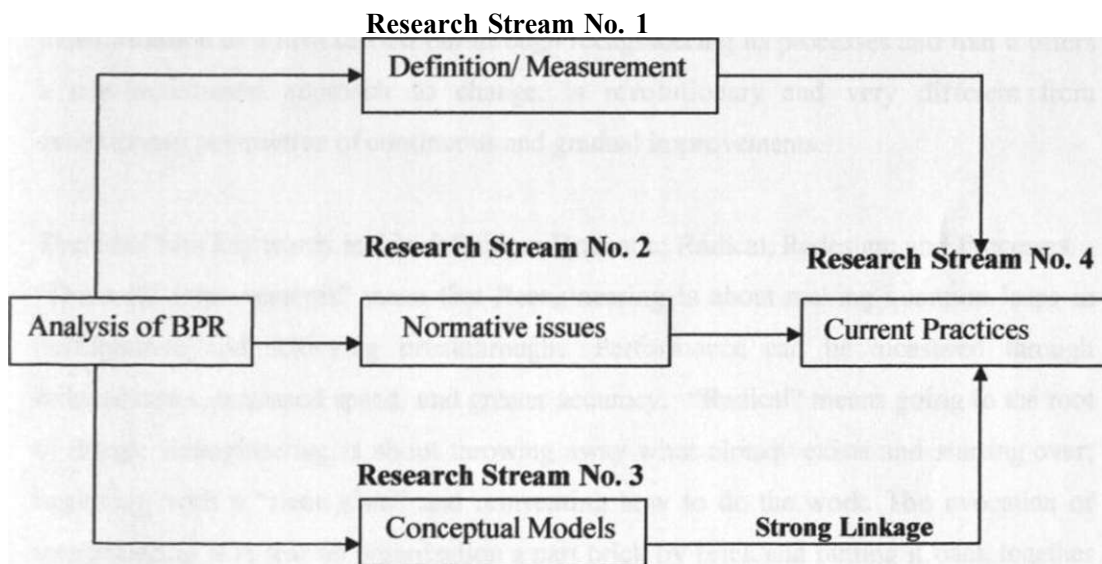
- i) To the Business community, this research project brings out the potential benefits of the BPR implementation process and also highlights likely frameworks which they can adopt;
- ii) For Academicians and Researchers, the findings contribute to the existing pool of knowledge on BPR and skills needed for the fast - paced decision - making environment;
- iii) To KPA, the findings provide information necessary to institutionalize, operationalize, and implement BPR in leveraging an improved performance of the port's supply chain.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Alavi and Yoo (1995) recommend that Literature on Business Process Reengineering should be grouped into four Research streams designated as 1, 2, 3 and 4. Research stream number one deals with BPR overview and its definitions, important elements of BPR, and comparison of BPR and TQM. The second covers the normative studies such as importance of BPR; need for proactive rather than reactive approach in BPR implementation; steps for BPR implementation: factors, importance and benefits of BPR implementation. The third is concerned with developing conceptual models for assessing and methodology for implementing the principles of BPR. The last one deals with the assessment and successful implementation of BPR by Organizations (Fig.2.1).

Fig 2.1: Theoretical Model of BPR Research Streams.



Source: Alavi and Yoo, 1995, pp. 43.

2.1.1 Overview and Definitions

The term "Business Process Re-design was first coined during a research programme started in 1984 at the Massachusetts Institute of Technology where BPR was classified as the third of the five levels of "Business Restructuring" Morton (1991) as cited by Biazio (1998). The first level is concerned with localized exploitation of information Technology (IT) within an organization's functions. It involves the development of applications, which improve the efficiency of operations. The Second level, of Internal

Integration represents the logical extension of the first level in the sense that the potential of IT is sought within activities that take place within the firm's processes with potential impact on both efficiency and effectiveness. The third level of Business Process Redesign consists of reengineering processes in order to exploit IT capabilities fully. This reflects an active, planned and conscious effort to align the firms' processes and IT. The fourth level, of Business Network Redesign, is concerned with the use of IT to redesign the nature of exchanges between firms that are part of the business network. The fifth level, of Business Scope Re-definition, refers to the opportunities IT offers for re-thinking the firm's mission. Business process reengineering was considered to be a specific strategy for using Information Technology.

Hammer (1995), has defined Business process reengineering as the fundamental rethinking and radical redesign of business processes to bring about dramatic improvements in performance. Biazo (1998) observes that BPR is the radical transformation of a firm carried out through reengineering its processes and that it offers a non-incremental approach to change, is revolutionary and very different from evolutionary perspective of continuous and gradual improvements.

There are four key words in this definition: Dramatic; Radical; Redesign; and Processes. "Dramatic improvements" mean that Reengineering is about making quantum leaps in performance and achieving breakthroughs. Performance can be measured through reduced costs, increased speed, and greater accuracy. "Radical" means going to the root of things. Reengineering is about throwing away what already exists and starting over; beginning with a "clean slate" and reinventing how to do the work. The evocation of reengineering is to tear an organization a part brick by brick and putting it back together again. "Process" refers to a group of closely related tasks that together create value for a customer. They are cross functional, results oriented and defy rather than respect organizational boundaries. Processes should be able to describe specific inputs and outputs, cross a number of organizational boundaries and focus on goals and ends rather than actions and means. They should be easily comprehensible by everyone in the organization. Complexity means artificiality. Reengineering is about the "redesigning" of processes - how work is done. Employees may be smart and capable, well trained, highly motivated, and encouraged to perform by all manner of incentives. But if the work they

are doing is poorly conceived and poorly designed, it will not be well executed. The starting point for organizational success is well-designed processes (Hammer, 1995).

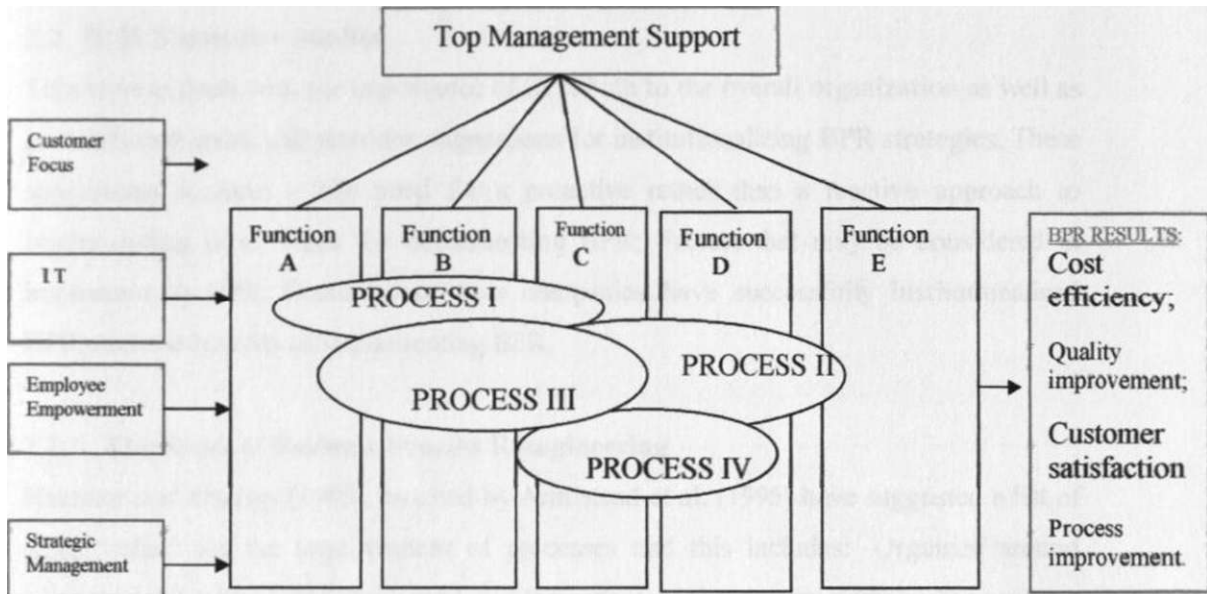
2.1.2 Elements and Characteristics of BPR

BPR implies a discontinuity in the performance of an organization. Incremental changes are not enough since transformation cannot be achieved without fundamental change. Davenport and Beers (1995) have argued that "Starting with a clean sheet of paper results in abolishing existing systems, skills, and structures which can lead to expensive rebuilding efforts." They therefore advocate for process innovation and see reengineering as a strategy for change that must carefully consider complex implementation issues involving understanding the workforce, technology and culture. BPR is the integration of processes, IT and business transformation. The main elements of BPR are characterized by fundamental work process redesign, adding value to final customers, the integration of cross - functional specialization and exploitation of IT (Fig. 2.2).

Chang and Powell (1998) points out that Reengineering focuses on customers, emphasizing 'value-addition' as the key to competitiveness. Improvements in execution must be by clearly focusing on the consumer value chain. Changes must add significant value from the customer's perspective in order to deliver any meaningful increases on the top line. BPR focuses on processes, entails both physical and informational aspects, and involves functional integration. It has been shown that process management differ from functional management in three ways: It focuses on external customers ; employees with different skills are grouped together to accomplish a complete set of work (process); and information moves to where it is needed without passing through the management hierarchy.

Work done by Davenport (1993) shows that BPR emphasizes on horizontal integration and involves cross - organizational boundaries, the analysis and design of work flows and processes within and between organizations. IT's role has evolved from operative efficiency to become an enabler in creating and maintaining flexible business networks. IT has been used to 'hasten' work rather than "transform" it. Reengineering also places a major emphasis on employees and their role in resolving problems. Process improvement involves changes to jobs and the social structure to increase motivation, reduce stress and improve performance by empowerment.

Fig 2.2: Main Elements of BPR



Source: Chang and Powell,(1998), pp.205.

Commitment, participation and involvement from top management are important and are strongly associated with technical innovations. Executive support with a vision and perspective, time and energy are needed to keep the reengineering initiative on track and moving. In practice a strategic approach and the development of a BPR strategy are key. Critical inputs from both corporate and IT planning should be incorporated in BPR planning.

Biazo (1998) observes that the Reengineering processes entails changes which affect organizational structures, operating mechanisms, management style, die characteristics of personnel and culture. The characteristics of a reengineered process are that tasks are enlarged and enriched; there is a transformation from "tortuous" processes made up of a set of separate and simple tasks to more "linear" processes made up of complex tasks. Secondly, responsibility and authority must be distributed along horizontal lines, which match the flow of activity; thus middle management control and functions lose their meaning. Thirdly, focusing on processes means that both performance measurement and control systems must be redesigned so as to promote and ensure that the systemic

objectives are attained. Finally, changes in both organizational structure and control systems require different attitudes and different competencies.

2.2 BPR Normative Studies

This section deals with the importance of BPR both to the overall organization as well as its functional areas, and provides suggestions for institutionalizing BPR strategies. These suggestions include: - The need for a proactive rather than a reactive approach to implementing BPR; Steps for implementing BPR; Factors that may be considered in implementing BPR; Examples of how companies have successfully institutionalized BPR; and the benefits of implementing BPR.

2.2.1 The Rules of Business Process Reengineering

Hammer and Champy (1995), as cited by Armistead et al. (1995) have suggested a list of eight "rules" for the improvement of processes and this includes: -Organize around outcomes not tasks: Have those who use the output of the process perform the process; Treat geographically dispersed resources as though they were centralized creating hybrid centralized/ decentralized organizations; Link activities in a natural order and perform them in parallel; Perform work where it makes most sense, particularly, decision making, information processing, checks and controls making them part of the process; Capture information once and at the source, minimizing reconciliation; Combine several jobs into one possibly creating a case manager or case team as a single point of contact and Create multiple versions of processes when appropriate.

2.2.2 BPR Applications, Goals and Objectives

Tennant and Yi-chieh (2005) have shown that the reasons for applying BPR include External competitive pressures; Internal cost reduction, and Productivity improvements. They have further shown that successful application of BPR is affected by acquisitions, management of change and Benchmarking exercises. Poor customer satisfaction, marketing opportunities, and dramatic loss of market share have also been included as important motivators. They argue that the main goals and objectives for BPR of various firms are cost reduction, productivity, emphasis on value-addition and focus on results. Most Organizations expect a BPR implementation timeframe of at least two years. Motivation and effectiveness of people also rated highly in the results suggesting that organizations have made a link between BPR and people issues.

2.2J The Role of IT, People and BPR Leadership

Davenport and Short (1990) have shown that Motivation and effectiveness of people rate highly and organizations should link BPR and people issues. Most organizations feel that training is an important aspect to ensure that people could adapt to the new processes enabling organizations to benefit in terms of Production; Profitability; Quality and Customer satisfaction. IT is generally involved in improving, co-ordinating and information access across organizations, which allows more effective management of task interdependence. There are eight different ways to think about IT capabilities and their Organizational impact within a BPR project (Table I).

Table2.1: IT Capabilities and their Organizational Impact in a BPR Project

IT CAPABILITIES	ORGANIZATIONAL BENEFITS
Transactional	To transform instructive processes into routine transactions.
Geographical	To enable rapid transfer of information across large distances, making processes independent of geography.
Automation	To replace or reduce human labour in a process.
Analytical	To bring complex analytical methods to bear on a process.
Informational	To bring vast amounts of detailed information into a process.
Sequential	To enable changes in the sequence of tasks in a process, allowing multiple tasks to be worked on simultaneously.
Knowledge Management	To allow the capture and dissemination of knowledge and expertise to improve the process.
Disintermediation	To connect two parties within a process that would otherwise communicate through an intermediary.

Source: Tennant and Wu, (2005), pp. 543.

2.2.4 KPA Throughput

In the year 2006, domestic cargo accounted for 10.18million tons (70.6%); Transit cargo was 3.9million tons (27.2%) and Transshipment 318,000 tons (2.2%). Container volumes increased by 9.8% to 479,355 Twenty Foot Equivalent Units (TEUS) in 2006, from 436,671 TEUs in 2005. All waterfront operation services are to be automated by September 2010 hence positively changing the way business will be done; culminating into an e - port. KPA anticipates an overall performance improvement in business processes from a period of 9 - 10 days currently, to one and a half days. Improvement is also expected in: General

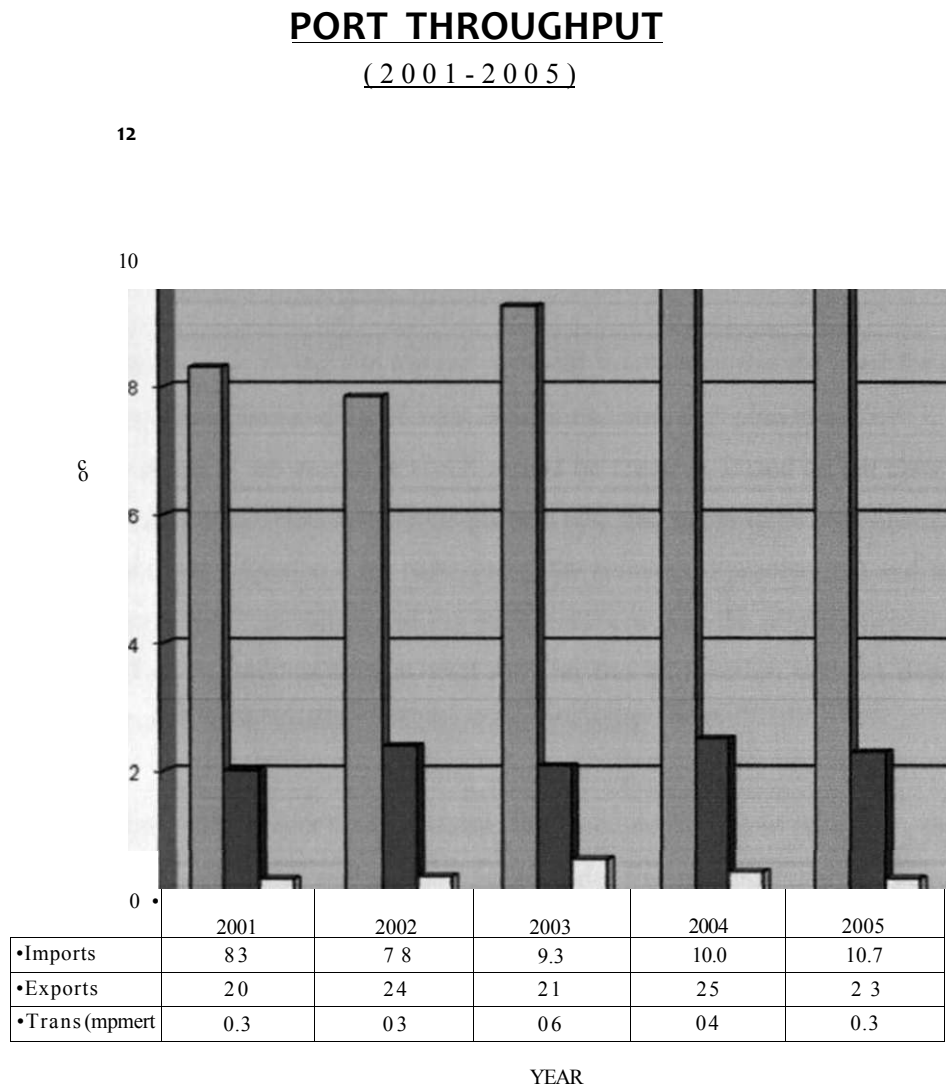
operational efficiency, increased throughput, reduced cargo dwell - time. Ship turn around times from an average of 3 days to one and a half days. Electronic document transmission and reduction in lost document security features. This information depicts KPA as a reactive and traditional organization in its operations in line with the earlier observation by UNCTAD, instead of being proactive. It is concentrating its operations on cargo loading and discharging without establishing a wide range of logistics and value - added activities, Fig. 2.3 (KPA, 2007).

Hammer (1995) argues that Reengineering is not downsizing nor is it a fad.. Reengineering is about rethinking work from the ground up in order to eliminate work that is not necessary and to find better ways of doing work. Reengineering posits a radical new principle: that the design of work must be based not on hierarchical management and the specialization of labour, but on end - to - end processes and the creation of value to the customer. He further points out that Organizations are seen as having four interrelated aspects. First, are the processes, the mechanisms by which work is performed and value creation. The design of business processes shapes the design of jobs and the kind of people needed to perform them.

These in turn give rise to an appropriate set of organizational structures and management systems for measuring, hiring, training, and developing these people. These systems in turn induce a set of attitudes, beliefs, and cultural norms about what is important; these support the performance of the process. Reengineering begins with process design, but inevitably moves through all facets of the organization. It leads to an organization that differs from the old one in all respects characterized by the 3Cs: Customers, Competition and Change.

A strong, committed, executive leadership is the absolute sine qua non for reengineering. In order to discharge the responsibilities of BPR leadership, the leader must possess certain personal characteristics including passion, trust and confidence, patience, vision and must create the environment for BPR to succeed. The Reengineering leadership makes use of three key instruments in a very deliberate fashion; the three "Ss" referred to as the tools of reengineering leadership: Signals: - Explicit communication; Symbols: - Personal behaviour; and Systems:-Measurements and rewards (Hammer 1995).

Figure 2J: Port Throughput 2001 - 2005



source: KPA, (2007)

2J Conceptual Models

The third Research stream deals with developing conceptual models for assessing and implementing BPR. Alavi and Yoo (1995) suggest that there should be in place specific models and/or methodology for implementing the principles of BPR or for selecting an effective set of measures for institutions practicing BPR.

2.3.1 A Practical Framework for BPR

Motwani and Youssef (1998) have observed that no standard integrated methodology for BPR exists; however, there is need for a more practical framework to guide leaders through the process of innovation and change. They suggest a six phase comprehensive reengineering plan that should be considered when implementing BPR from start to implementation. The six phases of the model include: Understanding; initiating; Programming; transforming; Implementing and Evaluating (Fig2.4).

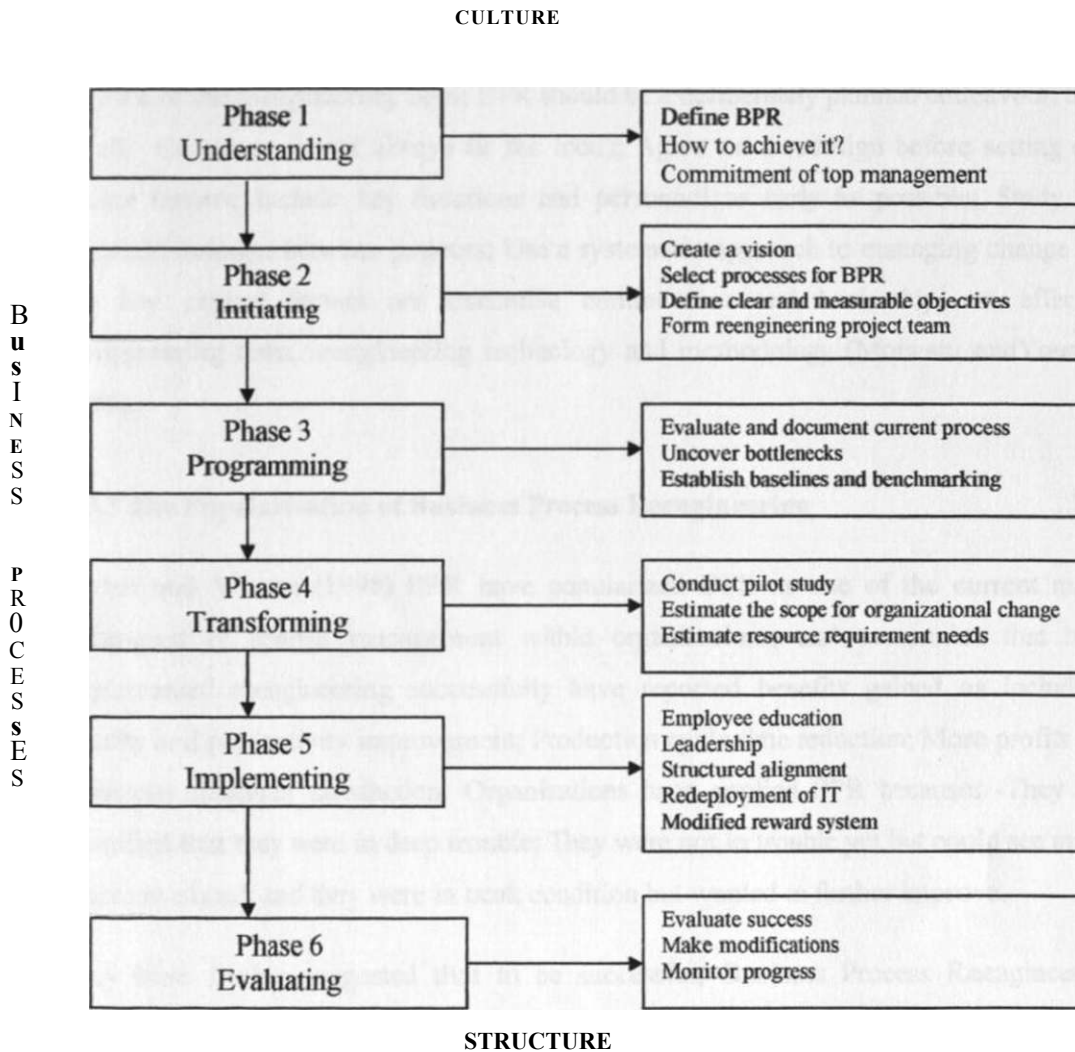
In the first phase of the model the top management must recognize the need for change, develop a complete understanding of what BPR is and how they plan to achieve it.

In the second phase of the model, a vision should be created. Based on the clear vision, the management should select a business process (es) that needs to be redesigned, define clear and measurable objectives for redesigning the reinvented process (es) and form the reengineering efforts. Executives and key staff members from the primary organizational units involved in the process (es) as well as from the information systems department should be included in the team(s) (Motwani and Youssef, 1998).

In the third phase, the project team evaluates and documents current processes, uncovers bottlenecks and establishes baselines and benchmarks for gauging future improvements. During this phase, the efforts of the project team are focused on identifying breakthrough opportunities and designing new work steps or processes that will create quantum gains and competitive advantage.

The fourth phase, referred to as 'transforming' involves actual transformation to the reinvented process or organization. This transformation should take place in a small-scale pilot environment, which will help in: - Fine tuning of the new process design; Enhancing management and employee understanding of the new process (es); and providing realistic estimates of the scope of the organizational change and resource requirements needed (Fig. 2.4).

Fig. 2.4: Practical Framework for BPR.



Source: Motwani and Youssef, (1998). pp. 972

Phase five is constituted by the new reengineered process (es) being fully implemented and successfully integrated into the organization. Successful integration involves: Employee education; Leadership; Structural alignment and redeployment of technical and human resources and a modified reward system. Changes made during this phase may cause resistance or resentment that must be addressed through continual communication among management, the project team and employees.

Phase six and the final phase of the model involves evaluating the success of the reengineering efforts against the performance objectives established in phase two. If the

reengineering efforts have not achieved all its goals, it should be redesigned and modified accordingly. This phase is one of the continuous commitments to the process reengineering. In addition, business leaders should also keep in mind the following: - Beware of the reengineering label; BPR should be a deliberately planned endeavour; Start small; Customer should always be the focus; Agree on a redesign before setting cost saving targets; Include key functions and personnel as early as possible; Study and highlight linkages between projects; Use a systematic approach to managing change and the key critical factors are executive commitment and leadership, an effective reengineering team, reengineering technology and methodology (Motwani and Youssef, 1998).

2.3.2 The Popularization of Business Process Reengineering

Barber and Wetson (1998) BPR have popularized BPR as one of the current major techniques of change management within organizations, and companies that have implemented reengineering successfully have reported benefits gained as including: Quality and productivity improvement; Production cycle time reduction; More profits and Improved customer satisfaction. Organizations have applied BPR because: -They had identified that they were in deep trouble; They were not in trouble yet but could see major problems ahead; and they were in peak condition but wanted to further improve.

They have further suggested that to be successful, Business Process Reengineering should focus on achieving the empowerment of people and the application of appropriate technology. They therefore propose that a reengineering programme should contain five phases (Table 2).

Motwani (1998) has observed that many organizations seek solutions without understanding future performance goals. This is further compounded when organizations struggle to create an environment for a successful reengineering that adequately addresses the people issues, which leads to fear and confrontation as employees find it difficult to accept completely new processes.

Tennant and Wu (2005) have suggested that top management need to be aware of and develop strategies which ensure that BPR should be a deliberately planned effort; The

customer should be the focus of BPR efforts; Recognize the targets of reengineering; Use a proper approach to manage change; and Integrate leadership, the reengineering team, technology and methodology.

»Ne 2.2: Typical Phases of a BPR Programme

PHASE	DESCRIPTION
Strategic Analysis	Identifying a vision or mission which will support the development of the business strategy.
Business Analysis	Rethinking the existing operational process within the context of the Business strategy.
Business Process Analysis	Identifying what an organization does to fulfil its strategic and operational goals.
Business Process Design	Concentrating on how to achieve the strategies defined in the business process analysis phase.
Business Process implementation	The deployment of resources to meet both the strategies defined from the business process analysis phase and the detailed requirements generated during the phase.

Source: Barber and Wetson, (1998) pp.37.

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The attributes of good re-engineering project designs and implementation should be Customer focused; Capitalize on best practices and learning from others (Benchmarking); designed for the future and aim at producing significant bottom-line improvements for the business. Davenport and Short (1990) have described a five-step approach to BPR:

(i) Develop Business Vision and process objectives

Vision, which implies specific business objectives such as, cost reduction, delivery time reduction, product/service improvement and flexibility.

(ii) Identify processes to be re-designed

Most firms use the high impact approach, which focuses on the most important processes or those that conflict most with business visions. Lesser number of firms use the exhaustive approach that attempts to identify all the processes within the organization and then prioritize them in order of redesign urgency.

(iii) Understand and measure the existing processes.

This is for the purposes of avoiding the repeating of old mistakes and for providing a baseline for future improvements.

(iv) Identify IT Levers and Design a prototype of the New Process

Awareness of IT capabilities can and should influence process design. IT should be able to support the processes and the processes should be those, which can be supported by IT. The actual design should not be viewed as the end of the BPR process. Rather, it should be viewed as a prototype, with successive iterations. The metaphor of prototype aligns the BPR approach with quick delivery of results, and the involvement and satisfaction of customers.

2.3.4 Ports as Logistic Systems

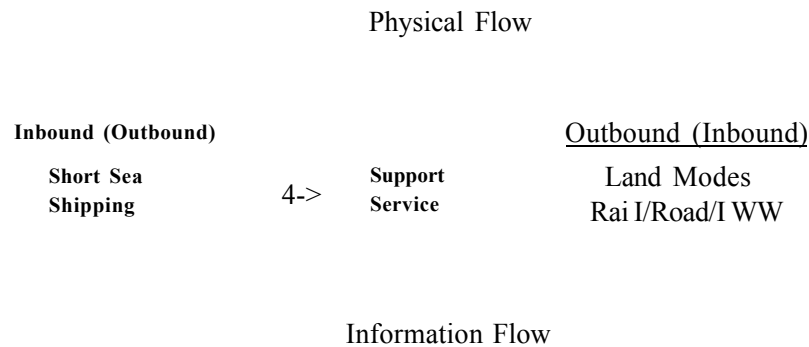
Traditionally, ports have been defined as areas made up of infra and superstructures capable of receiving ships and other modes of transport, handling their cargo from ship to shore and vice - versa and capable of providing logistics services that create value - addition. Ports are, therefore, four - modal nodes where ocean ships, short sea/river ships, road and rail modes converge and where a complementarity between waterborne and land modes must exist. However, ports are logistics systems along the supply chain which have to respond to pull logistics; their actions will contribute towards the reduction of inventory levels along the logistics pipeline, a fall in associated costs, and the fulfilment of tighter customers' requirements through high service levels with shorter lead - times. It is therefore important that ports' supply meet ports' demand levels. Consequently, there is a need to transform ports in such a way that they are able to create value rather than cost. By doing this, ports can develop several value - adding roles such as transport consolidation, product mixing, or cross - docking activities alongside their basic operations of cargo handling and storage (Ainsworth, 1992 as cited by Paixao, 2003).

Ports receive goods from ships to be distributed to land and Inland Water Way (IWW) modes that perform the remaining legs of the transport systems; at the same time that ports deliver to ships, goods arriving by rail, road and IWW. As bi - directional logistics systems, ports' operations demand high coordination, as what used to be simple loading and discharging operations have become very complex ones. Shippers' needs are growing in importance daily and more than ever shippers are keen to know the whereabouts of

their cargo. As in any logistics system, ports are made up of two flows: the physical and the information flows (fig. 2.5).

The information flow relates to the transfer of all relevant operational information concerning the bureaucratic procedures related to ship and cargo. The second flow, the physical flow, relates to the movement/handling of cargo through ports and /or terminals. The difference between this logistics system and a manufacturing one is that in the former, both flows move in the same direction, although the information flow should always be a head of the physical flow.

Figure: 2.5 Port as a Logistic System



Source: Paixao and Mar low, (2003) pp. 372

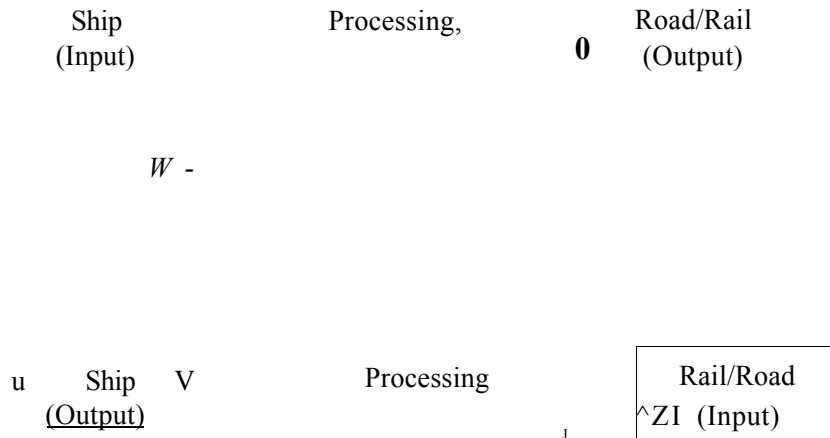
However, these logistics systems are made up of three different sub-systems which relate to the transfer of information and goods from ship to land transport (road and rail), and vice-versa, and from ship-to-ship, including, in this last case two different trades: the feeder shipping and the I WW transport (Fig. 2.6).

Port logistics systems indicate that they have a proactive role to develop the functions of distribution centres. To do so, they must perform the following functions, all of which involve short distance movements (Figs 2.5 and 2.6):

- (i) Receive the goods from different modes of transport and in different types (i.e. bulk, unitised, break-bulk.etc);
- (ii) Store the goods temporarily in port prior to, and after a ship's arrival for fulfilling formalities:
- (iii) Pick up goods parked in yards especially designed for the cargo under consideration to be loaded on the right ship or on the right surface mode; and
- (iv) Despatch the goods.

The functions identified and their sequence creates support for why BPR should apply to ports to create time and place utility when customers demand their services (Paixao and Marlow2003).

Fig. 2.6: The Sub - System of Port Logistic Systems



Source: Paixao and Marlow (2003), pp. 376

Key:

- Information Flow
- Physical Flow

2.4 Factors Impacting Implementation of BPR

The fourth Research stream deals with the assessment and implementation of current practices of BPR by manufacturing and service organizations. This stream illustrates how BPR can create a competitive advantage. Mashari and Zairi (1999) have analysed the BPR implementation process by reviewing the relevant literature on both soft and hard factors that impact on its success and failure. They have categorised them into a number of subgroups representing various dimensions of change related to BPR implementation including Change management: Management competence and support: Organizational structure; Project planning and management; and IT infrastructure.

2.4.1 Factors relating to Change Management Systems and Culture

Zairi and Sinclair (1995) point out that Change management, is considered to be a crucial component of any BPR effort. It involves all human and social changes, cultural adjustment techniques and structures needed in working practice and to deal effectively with resistance. A revision of reward systems, communication empowerment people involvement, training and education, creating a culture for change, and stimulating receptivity of the organization to change, have been advocated as the most important factors related to change management and culture . However, awareness, desire, knowledge, ability and reinforcement by the People are necessary tools for change. The availability of systems, structures and skilled staff are fundamental to change management.

(i) Revising Reward and Motivation Systems

Hammer and Champy (1993) have shown that Staff motivation through a reward programme has a crucial role in facilitating reengineering efforts and smoothing the insertion of new processes in the workplace. As BPR brings about different jobs, existing rewards systems are no longer appropriate for the new work environment. Reward systems should be revised and new incentive systems must be put in place to encourage harmony among employees. Introducing new job titles can be considered as one example of encouraging people to endorse the reengineering programme without fear.

(ii) Effective Communication

Davenport (1993) notes that this is a major key to successful BPR-related change efforts and is needed throughout the change process at all levels and for all audiences, even with those not involved directly in the reengineering project. Effective communication between stakeholders inside and outside the organization is necessary to market a BPR programme and to ensure patience and understanding of the structural and cultural changes as well as the organization's competition situation. Communication should take place frequently and in both directions between those in charge of the change initiatives and those affected by them. Communication should be open, honest and clear, especially when discussing sensitive issues related to change such as personnel reductions.

(iii) Human Involvement

In reengineering all people must be openly and actively involved and should be consulted at all stages on the process and its leaders. This includes line managers, process owners, those involved in information systems and Human resources, and workers. The culture of experimentation is an essential part of a successfully reengineered organization and, therefore, people involved or affected by BPR must be prepared to endure errors and mistakes while reengineering is taking place.

(iv) Training and Education

Zairi and Sinclair (1995) underscore the role of Training and education as an important component of Successful BPR implementation. BPR -related concepts, skills and techniques as well as interpersonal and IT skills, Skills in TQM implementation and process analysis techniques, are all important dimensions of training for BPR.

(v) Creating an Effective Culture for Organizational change

Hammer and Champy (1993) emphasize that Organizational culture is a determining factor in successful BPR implementation and that it influences the organizations' ability to adopt to change. The existing culture contains beliefs and values that are often no longer appropriate or useful in the reengineering environment. The organization must conform to the new values, management processes, and the communication styles that are created by the newly redesigned processes so that a culture that upholds the change is established effectively. As BPR supports teamwork and integration of labour, co-

operation, co-ordination, and empowerment of employees become the standard attitudes in the reengineered work environment.

(vi) Stimulating the Organization's Receptiveness to Change

Preparing the organization to respond positively to BPR-related change is critical to success. When people are made resilient to change they remain positive during uncertainty, focused, flexible, organized and pro-active. Leveraging organizational change requires effective one-to -one and one -to -many interactions to enroll key influences of both individuals and groups within and without the organization.

2.4.2 Factors relating to Top Management Involvement

Sound management processes ensure that BPR efforts will be implemented in the most effective manner. The most noticeable managerial practices that directly influence the success of BPR implementation are top management support and commitment, championship and sponsorship, and effective management of risks (Bashein 1994). Factors relating to management competence required for the success of BPR implementation include committed and strong leadership; championship and sponsorship; and management of risk (Harrison & Pratt. 1993; Cooper & Markius, 1995).

2.4.3 Factors relating to Organizational Structure

The content and process of organizational change, which underlie BPR, imply that the organization is a collection of processes, which can be reengineered "scientifically" and systematically. The nature of change is revolutionary and consists of the passage from functional units to process teams ; a move from simple tasks to multidimensional work; changes in power relations towards worker empowerment and change from a bureaucratic culture to one based on customer satisfaction; changes in managerial behaviour from supervisors to trainers. Planning for this change is top-down. Re-engineering must be directed, supported and led by the firm's top managers; furthermore, the pace of change cannot be discontinuous, given the radical nature of the improvement objectives the firm is seeking to achieve (Biazo, 1998).

It has been observed that Business Process Reengineering creates new processes that define jobs and responsibilities across the existing organizational functions; there is a clear need to create a new organizational structure which determines how BPR teams are

going to look, how Human resources are integrated, and how the new jobs and responsibilities are going to be formalized (Davenport and Short, 1990). Impacting factors in this subgroup as argued by various researchers include adequate job integration approach; effective BPR teams; appropriate job definitions and allocation of responsibilities (Zairi and Sinclair, 1995; Morris and Brandon, 1991).

2.4.4 Factors related to BPR Project Management

Various workers have shown that successful BPR implementation is highly dependent on an effective BPR program management, which includes adequate strategic alignment with the corporate strategy (Guha et al; 1993); effective planning and project management techniques; identification of performance measures (Zairi and Sinclair, 1995); adequate resources, appropriate use of methodology (Carr,1993), external orientation and learning(Jackson 1997), effective use of consultants (Davenport 1993), building process vision(Talwar 1993), effective process redesign, integrating BPR with other improvement techniques (Zairi and Sinclair 1995), and adequate identification of the BPR value (Guha .1993)

2.4.5 Setting Performance Goals and Measures

Setting high goals for performance and extendable targets for BPR are important success factors. Identifying and setting performance measures are also necessary as they indicate levels of achievement (Guha, 1993). The achievement of performance goals and measures as shown by Champy 1995 will require adequate resources, appropriate use of methodology, external orientation and learning, effective use of consultant, building a BPR vision, effective process redesign, integrating BPR with other improvement approaches and Adequate identification of BPR values.

2.4.6 Factors related to IT Infrastructure.

Brancheau (1996) and Ross (1998) have shown that factors related to IT infrastructure are a vital component of successful BPR implementation effort. Effective alignment of IT infrastructure and BPR strategy, building an effective IT infrastructure, adequate IT infrastructure investment decision, adequate measurement of IT infrastructure effectiveness, proper IS integration, effective reengineering of legacy IS, increasing IT function competency, and effective use of software tools are the most important factors that impact the success of BPR projects.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This Chapter describes the methods which were used in the collection of data and its analysis. It is composed of the Research Design. Population and Respondents of the study. Sampling and sample size, Data Collection and Analysis. A structured questionnaire was used to gather primary data.

3.2 Research Design

This was a case study which aimed at gathering information from middle and senior level management about BPR implementation. Similar designs have been used successfully in past studies by Nyawade (2005), Ngahu (2003), Munyiri (1999) and Kahigu (2003). While doing a case study of BPR and institutional strengthening at the KPLC, Thiga (1999), recommended that further research should be done on factors hindering Kenyan firms in the implementation of BPR.

3.3 Population

The population of the study comprised of all the eight hundred and sixty seven (867) management employees of KPA based in Nairobi and Mombasa structured into seven (7) functional units. The Kenya Ports Authority was used due to proximity, convenience and cost effectiveness; time and speed of data collection, cost constraints and ease of availability of the sample elements. Being a purely academic management research, the respondents were mainly the middle level and senior managers. The distribution of the sample elements was as shown in table 3.1.

3.4 Sampling and Sample size

The degree of confidence attached to the findings of the research depended on the sample size. A census of the 867 management employees with a constrained budget, time limitation, and generally limited resources was not possible. Hence a representative sample was used.

A multi - stage stratified sampling method was used to stratify the staff. In the first stage, the body of staffs was divided according to the location of their work (Mombasa. Nairobi or Kisumu) into clusters. In the second stage, each cluster was categorized into management and unionisable and the population of each was determined. In the third

stage, the management staff at Mombasa was divided into internally homogenous subgroups or strata according to the KPA organizational structure. These strata formed the various sample units, (SI.....S7), of the study. The next stage was the identification of middle level and senior Managers. Finally, the sample size representing the actual elements of respondents was determined.

Table 3.1: Distribution of Sample Elements

	Management	Percentages	Respondents
MD's office (SI)	19	2.19	2
Human Resources and Administration (S2);	170	19.61	20
Financial Controller (S3)	121	13.96	14
Corporate Services Manager (S4);	56	6.46	6
Harbour Master and Chief Operations Manager (S5);	450	51.90	52
Corporation Secretary / Legal services(S6);	23	2.65	3
Technical services manager (S7).	28	3.23	3
TOTALS	867	100	100

(Source: KPA personnel records, 2009).

A stratified sampling procedure was used to select the sample members to ensure that each element of the population was given a known non - zero chance of selection. The sample size can be determined by using established tables and formulae, or from similar studies carried out by other researchers. The sample size, n, for $\pm 10\%$ precision levels with a confidence interval of 95% for a population of 867 is 90, (Appendix V). However, this study intended to use a sample size of one hundred (100) to match available financial resources, timeframe and cover for non-returns. The sample size for each stratum was determined using the proportional allocation method (Table 3.1).

Local researchers have used various sample sizes. Atebe (2001) used a sample size of one hundred and fifty (150) while studying the effects of BPR in Business process cycles at the KPLC Ltd. Odock (2003) used a sample size of sixty two (62) when studying the social Cost Benefit practice of development projects in Kenya. Thiga (1999) selected 34 processes to form the sample size while doing a project in Business process reengineering and institutional strengthening at the KPLC LTD.

3.5 Data Collection

The data collection process was achieved through the administration of questionnaires to the sample elements. Primary data was collected by the use of closed and open - ended questions which comprised of sections (A) and (B). Section 'A' contained demographic information about respondents; whereas Section 'B', which was divided into parts (I) to (V), contained questions directed at capturing data necessary to meet the objectives of the study. The questionnaire was interviewer - administered in order to minimize the rate of non - return and help in shedding light on grey areas to the respondents. This method has been applied successfully by Kahigu (2003) and Mairura (2003).

3.6 Data Analysis

The completed questionnaires were collected from the respondents manually, edited to locate omissions and coded for consistency. Responses were rated on a 5 - point Likert scale, with 5 indicating the highest level and one (1), the lowest level on the characteristics being measured. The data was presented in form of tables. Since the variables of the study were interdependent, the data collected was analyzed using the Statistical Package for Social Sciences (SPSS). Descriptive statistics was used to analyze the data by way of mean scores, percentages, frequency distributions and proportions in order to give a general picture about the respondents for comparison purposes. This was appropriate because of the qualitative nature of the variables. This kind of analysis has been used successfully by Kahigu (2003) and Odock (2003).

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter details the findings and discussions of the research study. The data is summarized into descriptive statistics giving mean scores, percentages, frequencies and standard deviations. They are presented in tables, charts and figures. The information presented below is the analysed data collected from 41 out of 75 respondents who were willing to take the questionnaires reflecting a return rate of 54.6%. Several researchers (Kahigu, 2003; Odock, 2003) have reported return rates of between 30% - 85% in their work. The analysis was done using Statistical Package for Social Scientists [SPSS].

4.1.1 Demographic Data

The questionnaires were issued to staff in different divisions within the Ports Authority. These were *MD's Office*, *HR*, *Financial Controller*, *Harbor Master* and *Technical Services* divisions. The table below gives the divisional distribution of the respondents.

Table 4.1 Divisional Distributions

	Frequency	Percentage
MD's Office	6	14.6
Human Resources	8	19.5
Financial Controller	7	17.1
Harbor Master	5	12.2
Technical Services	15	36.6
Total	41	100.0

Source: Research data

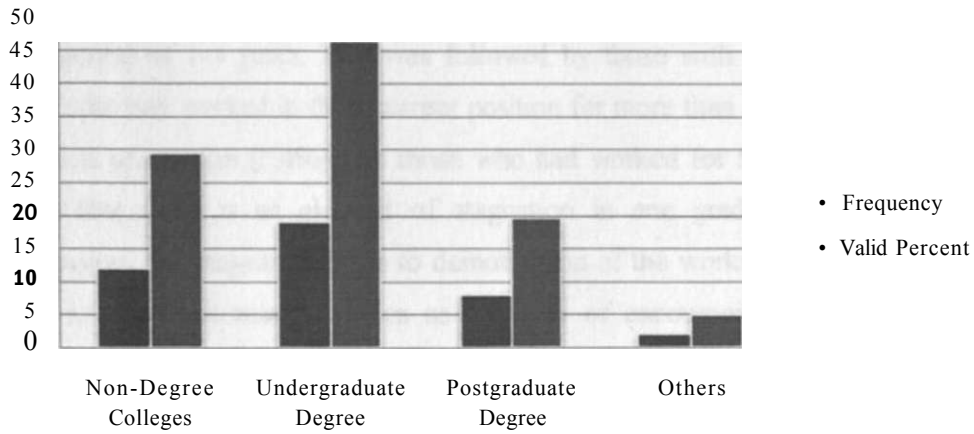
It can be seen from the table 4.1 that a majority of the respondents were from the Technical Services (36.6%) followed by Human Resources (19.5%), Financial Controller (17.1%) and the rest of the Divisions less than 15%. It was also found out that of the respondents 70% were males while 30% were females.

4.1.1.1 Academic Levels

It was found that of the respondents who filled the questionnaires, 19.5% were holders of post graduate degrees, 46.3% had undergraduate degrees and 29.3% had non degree

certificates while others accounted for 4.9%. This indicates that the greater percentage have a strong academic background and hence likely to know their stuff well, Fig. 4.1..

Fig: 4.1 Academic Levels

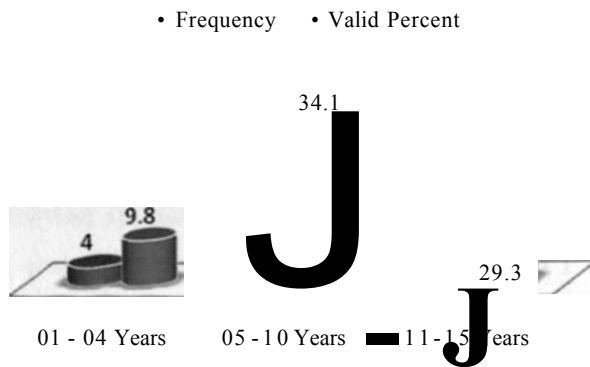


Source: Research data

4.1.1.2 Length of Experience

The study also sought to find out the experience of the respondents in the Port industry. Chart 4.2 shows that 9.8% of the respondents had less than 5 years experience at the KPA. 34.1% had experience of 5 - 10 years. This shows that 56.1%, a significantly large percentage had a high level of experience of above 10 years, a strong indication that we are dealing with people who have a high level of knowledge in port operations.

Fig. 4.2 Length of Experience

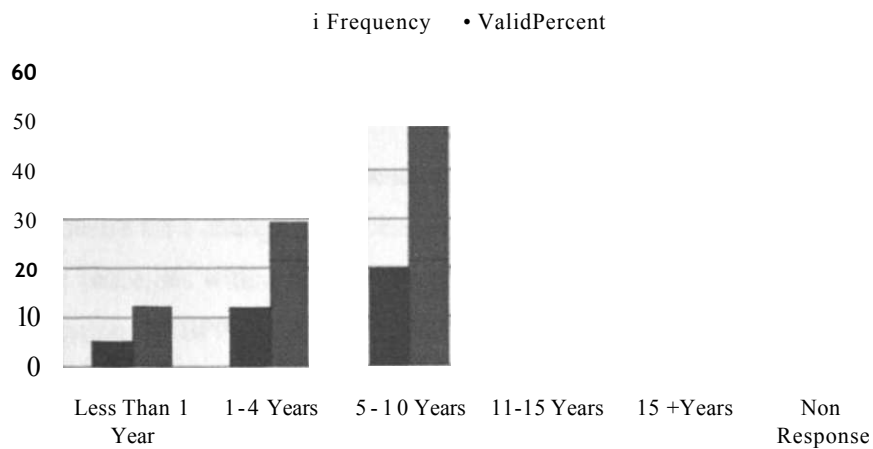


Source: Research data

4.1.13 Length in Current Position

The study also sought to find out the length the respondents have served in their current positions. The results are summarized in Fig.4.3. It was found out that 48.8% of the respondents had served in their positions for between 5-10 years while 29.3% had served for a period of 1-4 years. This was followed by those with less than 1 year (12.2%). Those who had worked in their current position for more than 15 years constituted 4.9%. The least proportion (2.4%) was those who had worked for between 11-15 years. This shows that there is an element of stagnation in one grade as opposed to upward progression. Job stagnation leads to demotivation of the workforce. Management should strive to introduce new job titles as one way of encouraging people to endorse the Reengineering programme without fear (Hammer and Champy, 1993).

Fig. 43: Length in Current Position



Source: Research data

4.2 Qualitative Analysis

4.2.1 Change Management

To establish the impact of change management on the implementation of BPR at the KPA, nine variables were put to test on a scale of 1 - 5 where: 1- Strongly Disagree; 2- Disagree; 3 - neither Neither Disagree nor Agree; 4 - Agree; and 5 - Strongly Agree. The Mean and Standard Deviation of the responses were then computed and the results are as shown in Table 4.2.

Table 4.2: Analysis of Change Management factors

Variables	Mean	Std. Dev.
Desire for change in processes	4.3659	.85896
Awareness of existence of BPR	3.9024	1.04415
Ability to handle all processes	3.7805	1.06095
Knowledge of BPR	3.5610	1.16294
Necessary Structures	2.9268	1.14870
Staff involvement	2.9024	1.17909
Necessary Skills	2.8780	1.20820
Reinforcement by more people	2.8049	1.22922
Harmonization with BPR	2.7317	1.18373

Source: Research data

It was found that the desire for a change in business processes had the highest mean score of 4.37 and a standard deviation of 0.86, followed by awareness of the existence of BPR with a mean score of 3.90 and a standard deviation of 1.04. Knowledge of BPR and ability to handle all processes had Mean scores of 3.56 and 3.78 respectfully. The rest of the variables had Mean scores of between 2.73 and 2.90.

The findings indicate that the respondents agree that they are aware of the existence of BPR, have a desire for a change in processes, have full knowledge of BPR and are able to handle all the processes within their section. However, they do not agree or disagree on the harmonization of BPR with other systems, availability of necessary structures to accommodate BPR, reinforcement by more people and the building of necessary skills to enable staffs handle BPR. Zairi and Sinclair (1995) point out that Change Management is a crucial component of any BPR implementation effort and it advocates for the inclusion of all the variables tested. The results show that Change Management, as a factor of BPR implementation, was done on an ad hoc basis.

4.2.2 Management Commitment

To determine the involvement of top management in the implementation of BPR at the KPA, a number of variables were administered to the respondents and the results recorded on a scale of 1 - 5 where 1 - Strongly Disagree and 5 - Strongly Agree. The Leader of the Reengineering is a senior executive and has a vision for the Organization had the highest mean scores of 3.75 and 3.53 respectfully. The other variables had mean

scores ranging between 2.88. and 3.25. The results indicate that as much as the respondents agree that the Leader of the Reengineering is a senior executive and has a vision for the Organization, they are not sure whether this Leader is effective, understands all aspects of BPR well, has succeeded in persuading Management to adopt BPR and is able to handle risks related to BPR implementation (Table 4.3).

Hammer and Champy (1995) stress that the most noticeable managerial practices that directly influence the success of BPR implementation are top management support and commitment, championship and sponsorship, and effective management of risks. This study shows that KPA top management is not fully committed to the BPR implementation.

Table 4.3: Analysis of Management Commitment factors

Variables	Mean	Std. Dev.
Leader is a Senior Executive	3.7500	.89872
Leader has a Vision for the Organization	3.5250	1.13199
Leader Understands all aspects of BPR	3.3750	1.05460
Vision clearly Communicated	3.2500	1.19293
Success in persuasion of Management to adopt BPR	3.2500	1.00639
Handling of Risks related to BPR	3.2250	1.07387
Leadership is Effective	2.8750	1.06669

Source: Research data

4.2.3 Organizational Structure

The research sought to know how organizational structure has affected the implementation of BPR by testing a number of variables on a scale of 1 - 5 and the results are shown in Table 4.4. The highest mean score recorded was 3.24 and the lowest being 2.80. This shows that all the respondents did not agree or disagree with the variables on Organizational Structure.

Davenport and Short (1990) have observed that BPR creates new processes that define jobs and responsibilities across the existing Organizational functions by creating a new Organizational Structure which determines how BPR teams are going to look, how human resources are integrated and how the new jobs and responsibilities are going to be

formalized. The results indicate that the KPA Organizational Structure has not changed to accommodate BPR farther confirming that BPR was done on an ad hoc basis.

Table 4.4: Analysis of Organizational Structure

Variables	Mean	Std. Dev.
Specific duties	3.2439	1.09042
Cross functional teams	3.2195	1.17286
Creativity	3.1463	1.13051
Competence	3.0732	1.23268
Composition of members	3.0244	1.31316
Responsibilities	2.9512	1.22375
Adequate Human capacity	2.8780	1.07692
Motivation	2.8780	1.05345
Skilled membership	2.8780	1.14445
Experience	2.8537	1.13051
Brainstorming	2.8049	1.05403

Source: Research data

4.2.4 Project Planning and Management

In order to study how project planning and management (PPM) has impacted on the implementation of BPR, a number of variables were tested on a scale of 1 - 5 where 1 - Strongly Disagree and 5 - Strongly Agree, and the findings are shown in table 4.5. The two highest mean scores recorded were 3.53 for adequacy of project resources and integration of BPR and Benchmarking. This indicates that the respondents were in agreement that adequate resources were allocated for BPR implementation and that BPR was well integrated with Benchmarking. However, all the other variables have got mean scores of between 3.03 and 3.48. This implies that the respondents are not sure whether or not BPR was introduced as a project and that it went through a complete project life cycle.

Zairi and Sinclair, (1995), have shown that successful BPR implementation is highly dependent on an effect BPR project Planning and Management programme, which includes adequate strategic alignment with the corporate strategy; effective planning and project management techniques. This aspect of PPM seem to be lacking at the KPA.

Table 4.5: The Effects of PPM

Variables	Mean	Std. Dev.
Adequacy of Resources	3.5250	1.08575
Integration with Benchmarking	3.5250	1.21924
Appropriate methodology	3.4750	1.15442
Implementation process	3.4500	1.10824
Feasibility studies	3.3000	1.01779
Project identification	3.2750	1.10911
Use of consultants	3.2750	.96044
Customer Research	3.2750	1.06187
Monitoring and Evaluation	3.0250	1.14326

Source: Research data

4.2.5 IT Infrastructure

To find out the impact of IT infrastructure on the implementation of BPR at the KPA, respondents were required to indicate their responses on a number of variables which were also recorded on a scale of 1 - 5 where: 1 - Strongly Disagree; and 5 - Strongly Agree. The results are as shown in table 4.11. The highest mean score was that of increased IT performance with 4.02 and the lowest was that of 3.39. This implies that the respondents are in total agreement that there has been an increase in IT performance at KPA. However, they are not sure whether or not this increased is as a result of BPR implementation. It is also worth noting that the respondents are also not sure whether or not modern software programmes are in use at the KPA.

Brancheau, (1996), and Ross, (1998), have shown that factors related to IT infrastructure are a vital component of BPR implementation. The results show that IT as a BPR enabler at KPA is sound with the establishment of an IT division.

Table 4.6: Analysis of IT Infrastructure

Variable	Mean	Std. Dev.
Increased IT Performance	4.0244	.90796
Adequacy of IT Infrastructure	3.8780	.97967
Alignment with IT Strategy	3.7805	.93574
Accommodation of radical shift in Technology	3.7317	1.11858
Modern Software programmes	3.4390	1.18425
IT and BPR well integrated	3.3902	1.09266

Source: Research data

Finally, IT infrastructure had an overall mean score of 3.71 and a standard deviation of 1.04; followed by management commitment mean score (3.32) standard deviation (1.06); project planning and management mean score (3.35) as shown in table 4.12. This implies that the respondents agreed that IT as a BPR enabler is well integrated with BPR. However, they seem not sure whether or not all the other factors have been considered (Table 4.7)

Table 4.7: Summary of Analysis of the Various Factors

Factors	Mean	Std. Dev.
IT Infrastructure	3.71	1.04
PPM	3.35	1.10
Change Management	3.32	1.12
Management Commitment	3.32	1.06
Organizational Structure	3.01	1.15

Source: Research data

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter addresses the findings of the study in relation to the study objectives, conclusions and recommendations. All these have been derived from the data analyzed in the previous chapter. The conclusions are based on the comments of the respondents. The objectives were:

- i) To establish the impact of change management on the implementation of BPR at the KPA;
- ii) To determine the impact of top management involvement in the implementation of BPR at the KPA;
- iii) To show how organizational structure has affected the implementation of BPR at the KPA;
- iv) To study how project planning and management has impacted on the implementation of BPR at the KPA;
- v) To find out the impact of IT infrastructure on the implementation of BPR at the KPA.

This section also highlights the limitations of the work and gives suggestions for further research.

5.2 Summary

It was the anticipation of the researcher to administer one hundred (100) questionnaires but only seventy (75) obliged to be sample elements. Of these, forty one (41) were returned reflecting a return rate of 54.6%. The majority of these were from Technical services (36.6%), followed by Human Resources (19.5%), and the least was Harbor Master with 12.2%. The other sections enumerated in table 3.1 did not accept the questionnaires citing pressure of work.

A majority of the respondents (46.3%) were found to be having undergraduate degrees while 19.5% were postgraduates. This indicates that KPA has a staff with a strong academic background and likely to know their staff well. The findings also show that a majority of the port workers have a long job experience, meaning that they normally work without much supervision thus, giving Management ease of time to concentrate on

other issues. It was however noted that there is an element of stagnation as 48.8% of the respondents have been in their current positions for between 5 to 10 years. This leads to job fatigue, a demotivated, demoralized, and disillusioned workforce.

It was observed that of the nine variables which were put to test regarding Change Management, only four had a mean score of 3.5 and above thus agreeing that Change Management factors positively impacted on BPR implementation. However, the other five had a mean score of less than 3.5 indicating that Change Management as a factor has impacted negatively on BPR implementation.

The analysis of Management Commitment factors put seven variables to the respondents out of which only two had a mean score of 3.5 and above. This means that the respondents agreed with only two variables as having a positive impact with BPR implementation. They disagreed with five out of seven of the variables meaning that Management factors have negatively impacted on BPR implementation.

A total of eleven variables were put to test concerning Organizational Structure factors. The results indicate that all of them had mean scores of less than 3.5. This means that nothing has changed on the Organizational Structure to reflect creation of new jobs and responsibilities which is the main essence of a BPR programme. Therefore, it was found that Organizational factors impacted negatively on the BPR implementation at the KPA.

When analyzing factors related to Project Planning and Management, eleven variables were put to test out of which only two had a mean score of 3.5 and above. The other nine had mean scores of less than 3.5. However, it is important to note that most of the variables had mean scores of around 3. On the scale of 1 - 5 this means that a majority of the respondents did not agree or disagree on PPM factors. This means that they are not sure of BPR have been implemented as a Project. Thus PPM factors have impacted BPR implementation negatively.

The analysis of IT factors as a BPR enabler put six variables to test .Results show that four of the variables had mean scores of 3.5 and above and that only two had less than 3.5 but very close to it. This implies that a majority of the respondents had agreed that IT factors have positively impacted on the BPR implementation.

53 Conclusions

Revision of reward systems, communication empowerment, involvement of people, training and education, creating a culture for change and dealing effectively with resistance to change are the most important factors related to change management and culture. The study shows that a majority of the respondents are not aware of the existence of BPR. Furthermore, not all systems have been harmonized with BPR. Structures and necessary skills have also not been built to enable staffs handle BPR effectively. Change Management factors have not been well implemented, hence they have negatively impacted BPR implementation.

The study shows that the BPR leadership at KPA is a senior executive, has a vision which is clearly communicated to all employees of the organization and understands all aspects of BPR well. The leadership has been successful in persuading management to change to BPR and is able to handle all BPR - related risks well. However the results show that Management factors have also negatively impacted on the BPR implementation.

The study shows that BPR teams are cross - functional, however, they do not have adequate human capacity experienced in all processes. The workforce is highly experienced, competent but less motivated. The BPR teams are not integrated with members from outside the organization. They have not been trained in brainstorming on BPR and are not highly skilled and creative. However, the BPR team members have clearly specified duties but the organizational structure did not change in form of new responsibilities with the introduction of BPR. Results conclude that Organizational Structure factors have impacted negatively on the implementation of BPR.

BPR Project identification, feasibility studies and design were well carried out at the KPA. Adequate resources were allocated to BPR and there was appropriate use of consultants. The study also showed that BPR methodology was well implemented. It was also observed that BPR is well integrated with other improvement techniques such as Bench marking, however customer research, the implementation process, monitoring and evaluation were not successfully carried out. This leads to the conclusion that PPM factors have negatively impacted on the BPR implementation at KPA.

It was generally agreed that there is an alignment of BPR and the IT strategy, and that the IT infrastructure is adequate at the organization. It is also concluded that modern BPR

software programs are in use and that the organization has increased its IT performance. The IT is also able to accommodate the radical shift in technology brought about by the BPR implementation. Finally, IT as a BPR enabler, are well integrated in the implementation process and has had a positive impact on BPR.

In conclusion, KPA has taken into account the factors which impact the implementation of BPR however; a majority of the workforce seems not to link new processes to BPR implementation. A majority of the respondents feel that any new project at the port is normally allocated to specific people who could be related to top management in one way or the other instead of involving the entire staff. For a successful BPR implementation, the KPA management should take into account all the five factors undertaken in this study. Otherwise BPR implementation at KPA was on an ad hoc basis and may not achieve expected results.

5.4 Recommendations

Pursuant to the preceding findings, the study recommends that all staff in any organization carrying out BPR should be well trained during the awareness period. They should also have a desire for a change in business processes, necessary skills and full knowledge of BPR in their workplace. All sections should be reinforced with more people and have in place systems and necessary structures for BPR. The staffs should be at the core of BPR implementation.

Top management must support the process and be willing to invest time and resources in BPR implementation. The leader of the reengineering should be a senior, effective executive with a clear vision for the organization which has been communicated to all employees. The leader should understand all aspects of BPR well, be able to handle risks related to BPR implementation and successfully persuade management to change to BPR.

Organizations should form cross functional BPR teams whose members are experienced in all processes, highly competent, with high creativity and highly motivated. The members should be trained in brainstorming, be highly skilled and have clearly specified duties which are reflected in the organizational structure in form of new responsibilities.

When implementing BPR, organizations should embrace effective project planning and management. This means that BPR should be introduced into an organization as a

project. Proper project identification, feasibility studies and design should be carried out. There should be appropriate use of BPR methodology, consultants and allocation of adequate resources. In addition, customer research must be carried out and a proper implementation process done followed with regular monitoring and evaluation.

Organizations carrying out BPR should align it with their IT strategy as an enabler. There should be adequate IT infrastructure with modern BPR software programs in use. They should also increase their IT performance which should be able to accommodate the radical shift in technology. Finally, the IT infrastructure and BPR implementation should be well integrated.

5.5 Limitations of the Study

There were limitations on time and financial resources. On this account, it was not possible to have a one - on - one interview with the respondents. A number of respondents expressed the desire to give more insight to their views if it was possible.

Being a protected area, accessibility to the port offered special challenges as the researcher had to undergo through security checks before being allowed entry. It was necessary that the researcher had to sign indemnity forms absolving the Authority from any liability resulting from personal injury or industrial risks before commencement of the research.

It was appreciated that respondents' bias may have been an inevitable part of the study as employees were required to make a judgment on the institution that they work for. One may perceive penalties or benefits resulting from taking a particular position on an issue. This was, however, minimized by encouraging anonymous responses.

5.6 Suggestions for Further Research

The study suggested the extension of the analysis to include:

- i) Further research should be conducted on impact assessment of BPR implementation other corporate organizations which have undertaken BPR.
- ii) Research should also be carried out on the lessons to be learned from KPA's implementation of BPR.
- iii) The study focused in the public sector. Future research should be conducted to compare BPR implementation in both public and private organizations.

LETTER TO RESPONDENTS

Mireri Shem, O. J.,
Veterinary Research Laboratories,
Private Bag, 00625. Kangemi,
Nairobi, Kenya.

DATE

Dear Respondent,

RE: Management Science Research Project Questionnaire

I am a Master of Business and Administration (MBA) Student of the University of Nairobi, Bandari Campus, Department of Management Science. As part of my coursework assessment, I am required to submit a Research Project report of a management nature. Mine is a case study of the factors impacting implementation of Business Process Reengineering at the Kenya Ports Authority.

Business Process Reengineering is defined as the fundamental rethinking and radical redesign of business processes to bring about dramatic improvements in performance. The aim of writing this note is to request you kindly to fill for me the questionnaire attached herewith to the best of your capability. I hereby assure you that the information so collected is purely for academic purposes and will be treated with the utmost confidentiality that it deserves and at no one time will reference be made to you as an individual.

THANK YOU.

Mireri Shem, O.J.

Researcher

Authority to Conduct Research



Kenya Ports Authority

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MPE/2/1/20

5* November 2009

Mr Miren Shem O.
C/O. University of Nairobi
P.O Bo* 30197
NAIROBI.

RE REQUEST TO CONDUCT RESEARCH

This has reference to your letter dated 10th October 2009 in respect of the above-mentioned subvert

I have the pleasure to inform you that you have been accepted to carry out your research with the Authority for a period of 2 weeks with effect from 9th to 20th November 2009.

The Authority during the Research period will not pay you any allowance. Also note that the Authority will not be held responsible for any industrial risks or personal injury by accident arising out of and in the course of your Research.

You will therefore be required to sign indemnity forms absolving the Authority from **any liability** before commencement of the Research period

Please confirm in writing your acceptance of this offer and contact the Training Section, Personnel Department, for further instructions.

A handwritten signature in black ink, appearing to read 'Boaz O. Uuko', with a large initial 'T' written above it.

Boaz O Uuko
PRINCIPAL PERSONNEL OFFICER (SO)
FQfc MANAGING PIKECTUK

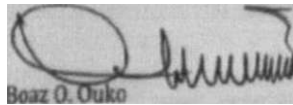
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Letter of Authority cont'd

The Manager Financial Accounting
The Pnncptal Personnel Officer (MS)
The Principal Personnel Officer (A&W)
The Principal Personnel Officer (SD)
The Employee Relations Manager
The Assisunt Harbour Master
The Corporate Services Manager
The Corporate Secretary & Heads of Legal Services
The Principal Operations Research Consultant
The Terminal Engineer
The Terminal Manager
MOMBASA.

For information and necessary action regarding the Protect Research for Mr. Shem who is a student from University of Nairobi undertaking Master of Business Administration (MBA) carrying out a research on "The Factor impacting Implementation of Business Process Re engineering"

Kindly assist him to get the necessary exposure



Boaz O. Ouko

**PRINCIPAL PERSONNEL OFFICER (SO)
FOR HUMAN RESOURCE AND APMN. MANAGER**

QUESTIONNAIRE

Division/Department

Business unit/Section

SECTION A:

Kindly indicate by a tick (✓) in the box with your answer.

1.1 Gender

M		F	
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1.1 Indicate your academic level

Non-degree colleges (Dip, Cert, etc)	Undergraduate degree	Post-graduate degree	Others (specify)

1.2 What is your length of experience in Port Operation Management?

< 1 year	1 - 4 years	5 -10 years	11-15 years	15+ years

1.3 For how long have you been in your current position?

< 1 year	1 -4 years	5 -10 years	11-15 years	15+ years

1.5 What are your Professional qualifications related to Port operations?

SECTION B

PART I: BPR and Change Management

The following statements relate to Business Process Reengineering (BPR); kindly indicate with a tick whether you:

- (i) Strongly disagree (SD) (ii). Disagree (D) (iii). Neither agree nor disagree (N)
 (iv). Agree (A) (v) Strongly Agree (SA)

		Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
1	I am aware of the existence of BPR within KPA					
2	I have a desire for a change in business processes					
3	I have full knowledge of BPR at my workplace					
4	I am able to handle all processes within my section					
5	My section has been reinforced with more people					
6	All systems have been harmonized with BPR					
7	Necessary structures have been put in place for BPR					
8	KPA staffs are at the core of BPR implementation					
9	Necessary skills have been built to enable staffs handle BPR					

10. Kindly indicate in your opinion any other factors relating to change management which the researcher may need to know;

PART II: Top Management Involvement in BPR

		Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
11	The leader of reengineering is a senior executive.					
12	The reengineering leadership is very effective.					
13	The leader has a vision for the organization.					
14	This vision has been clearly communicated to all employees					
15	The leader understands all aspects of BPR well.					
16	The leadership is successful in persuading Management on the need to change to BPR					
17	The leadership is handling risks related to BPR implementation					

18. What are your personal observations towards BPR implementation with respect to top management commitment and support?

PART III: BPR Organizational Structure

		Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
19	The BPR teams are cross - functional					
20	The teams have adequate human capacity					
21	Team members are experienced in all processes					
22	They are from both inside and outside the organisation					
23	Team members are highly competent					
24	They are people of high creativity					
25	They are highly motivated					
26	The members have been trained in brainstorming					
27	The team members are highly skilled					
28	They have clearly specified duties					
29	The organizational structure changes in the form of new responsibilities					

30. Kindly point out any changes which have been made in the organizational structure in the past five years in your organisation

PART IV: BPR Project Planning and Management

		Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
31	BPR project identification was well done					
32	BPR feasibility studies were carried out					
33	BPR is well designed					
34	Adequate resources are allocated for BPR					
35	There is appropriate use of BPR methodology					
36	There is effective use of consultants					
37	BPR is well integrated with Benchmarking					
38	Customer research was carried out					
39	BPR implementation process was successfully done					
40	There is regular Monitoring and Evaluation					

41. In your view highlight any factors related to BPR project planning and management in your organisation which may be of interest to the researcher.

PART V: BPR and IT Infrastructure

		Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
42	There is alignment of IT and the BPR strategy					
43	There is adequate IT infrastructure in my organization					
44	Modern BPR software programmes are in use					
45	My organization has increased the IT performance					
46	The IT infrastructure is able to accommodate the radical shift in technology					
47	IT infrastructure and BPR implementation are well integrated.					

48. Briefly give your views about the IT infrastructure in your organization as a BPR enabler.

THANK YOU VERY MUCH

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Sample Size Distribution

Sample size for $\pm 3\%$, $\pm 5\%$, $\pm 7\%$ and $\pm 10\%$ Precision Levels Where Confidence Level is 95% and $P=.5$.

Size of Population	Sample Size (n) for Precision (e) of:			
	$\pm 3\%$	$\pm 5\%$	$\pm 7\%$	$\pm 10\%$
500	a	222	145	83
600	a	240	152	86
700	a	255	158	88
800	a	267	163	89
900	a	277	166	90
1,000	a	286	169	91
2,000	714	333	185	95
3,000	811	353	191	97
4,000	870	364	194	98
5,000	909	370	196	98
6,000	938	375	197	98
7,000	959	378	198	99
8,000	976	381	199	99
9,000	989	383	200	99
10,000	1,000	385	200	99
15,000	1,034	390	201	99
20,000	1,053	392	204	100
25,000	1,064	394	204	100
50,000	1,087	397	204	100
100,000	1,099	398	204	100
>100,000	1,111	400	204	100

a = Assumption of normal population is poor (Yamane, 1967). The entire population should be sampled.

Source: www.edis.ifas.ufl/2008

Summary of Descriptive Statistics

Variable	Mean	Std. Deviation
I have a desire for a change in business processes	4.3659	.85896
My organization has increased the IT performance	4.0244	.90796
I am aware of the existence of BPR within KPA	3.9024	1.04415
There is adequate IT infrastructure in my organization	3.8780	.97967
I am able to handle all processes within my section	3.7805	1.06095
There is alignment of BPR and IT strategy	3.7805	.93574
The leader of reengineering is a senior executive	3.7500	.89872
IT is able to accommodate the radical shift in technology	3.7317	1.11858
I have full knowledge of BPR at my workplace	3.5610	1.16294
The leader has a vision for the organization	3.5250	1.13199
Adequate resources are allocated for BPR	3.5250	1.08575
BPR is well integrated with benchmarking	3.5250	1.21924
There is appropriate use of BPR methodology	3.4750	1.15442
BPR implementation process was successfully done	3.4500	1.10824
Modern BPR software programs are in use	3.4390	1.18425
IT infrastructure and BPR implementation are well integrated	3.3902	1.09266
The leader understands all aspects of BPR well	3.3750	1.05460
BPR is well designed	3.3000	1.01779
BPR feasibility studies were carried out	3.2750	1.10911
There is effective use of consultants	3.2750	.96044
Customer research was carried out	3.2750	1.06187
The vision has been clearly communicated to all employees	3.2500	1.19293
Leadership successful in persuading mgt to change to BPR	3.2500	1.00639
They have clearly specified duties	3.2439	1.09042
The leadership is handling risks related to BPR implementation	3.2250	1.07387
The BPR teams are cross functional	3.2195	1.17286
BPR project identification was well done	3.2195	1.17286
They are people of high creativity	3.1463	1.13051
Team members are highly competent	3.0732	1.23268
There is regular monitoring and evaluation	3.0250	1.14326
They are from both inside and outside the organization	3.0244	1.31316
Organization structure changes in form of new responsibilities	2.9512	1.22375
Necessary structures have been put in place for BPR	2.9268	1.14870
KPA staffs are at the core of BPR implementation	2.9024	1.17909
Necessary skills have been built to enable staffs handle BPR	2.8780	1.20820
The teams have adequate human capacity	2.8780	1.07692
They are highly motivated	2.8780	1.05345
Team members are highly skilled	2.8780	1.14445
The reengineering leadership is very effective	2.8750	1.06669

Team members are experienced in all processes	2.8537	1.13051
My section has been reinforced with more people	2.8049	1.22922
The members have been trained in brainstorming	2.8049	1.05403
All systems have been harmonized with BPR	2.7317	1.18373

Source: Research data