BUSINESS PROCESS REENGINEERING PRACTICES AND PERFORMANCE OF
PHARMACY AND POISONS BOARD IN KENYA

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DECLARATION

This research project is my original work and has not been submitted for any degree in any other university.

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This project was undertaken by the candidate under my supervision and has been submitted for examination with my approval as the University Supervisor.

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DEDICATION

This project is dedicated to my husband Joel and my children: Mitchell and Mike. It is also dedicated to the families of the Mr./Mrs. William Naibei and Mr./Mrs. Cosmas Kemei and friends for their prayers, love and support that I received during the study.
ACKNOWLEDGMENT

This Research Proposal would not have been possible without the cooperation and support of a number of people, who in one way or the other steered me towards my ultimate goal. I would like to express my appreciation to them and especially to the following:-

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ABBREVIATION AND ACCRONYMS

PPB- Pharmacy and Poisons Board
BPR- Business Process reengineering
RBV- Resource Based View
BSC- Balance Score Card
PM- Performance Management
TB- Tuberculosis
PV- Pharmacovigilance
MRA- Medicines Regulatory Authority
ADR- Adverse Drug Reaction
IT- Information Technology
DE- Developing Economies
BPRCC-Business Process Reengineering Complementary Competencies
MOH- Ministry of Health
RCOREs-Regional Centre of Regulatory Excellence
NEPAD-New Partnership for Africa's Development
TQM- Total Quality Management
ROA- Return on Assets
ROE- Return on Equity
OS- Organization Structure
IS- Information System
CI- Continuous Improvement
CSF- Critical Success Factor
OPERATIONAL DEFINITION OF TERMS

**Business Process** is a set of logically related tasks performed to achieve a defined business outcome. Hence a process can be seen as those activities carried out to produce a specified output for a particular market or customer. For example, developing a new product, withdrawing or depositing cash, opening an account, cheque deposit. It implies a strong emphasis on how work is done in an organization.

**Organizational performance** comprises the actual output or results of an organization as measured against its intended outputs (or goals and objectives).

**Staff Training** is the assessment of people's skills when the organization is about to bring business process reengineering. This improves the organization's performance and employee morale.

**Organizational structure (OS)** is normally described as the way responsibility and power are allocated, and work procedures are carried out among organizational members. It becomes more relevant when it is in harmony with the objective mission, competitive environment and resources of the organization.

**Technology** is a systematic application of physical forces for production of goods and services. It is the knowledge, process, tools, methods and systems employed in the creation of goods and improving in services. Technology is the result of man’s learned and acquired knowledge or his technical skills regarding how to do things well
ABSTRACT

The general objective of this research study was to investigate effect of BPR on performance of Pharmacy and Poisons Board. The findings in this study will be beneficial to scholars in the business process reengineering to identify gaps that need to be expounded upon. This study will also be important to the various users of this research information who include government regulators, Pharmacy and Poisons Board, other medical regulatory bodies, government agencies, donors, other stakeholders investors and academia. The findings in the study will also be useful to top management of the different health regulatory bodies in Kenya since they will be able to know the contribution of business process reengineering as a strategic tool in the Public Health Sector. This study adopted a descriptive survey design. The findings indicated that training of staff have the highest effect on Performance of Pharmacy and Poisons Board followed by Technology, then organization structure while Continuous improvement had the least effect on Performance of Pharmacy and Poisons Board. All the variables were significant as their P-values were less than 0.05. Based on the findings, it can be concluded that Pharmacy and Poisons Board has automated most of operation and hence technology is a major contributor to effective performance of Pharmacy and Poisons Board. On the basis of staff training, the study recommended that Pharmacy and Poisons Board should encourage more of its employees to further their education by enrolling in institutions of higher learning and tertiary colleges in order to achieve the required development objectives and the range of competencies, knowledge and skills which are necessary to meet effectively the career development needs of human resources handling medical and pharmacy operations.
CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Lusch and Lacznik (2009) define organization performance as the total economic results of the activities undertaken by an organization. Walker and Ruekert (2007) found primary dimensions of business performance could be grouped into the three categories of effectiveness, efficiency, and adaptability. But there is little agreement as to which measure is best. Thus, any comparison of business performance with only these three dimensions involve substantial trade-offs: good performance on one dimension often means sacrificing performance on another (Donaldson, 2004).

Kaplan and Norton (1992) developed a system in which measurements are meant to drive performance where they cited productivity, employees’ motivation and cost efficiency as the rightful measure of performance. Davenport and Harris, (2007) on the other hand, suggest that organizations will determine the level of performance by the overall customer satisfaction. They argue that the frontier for using data is not just in measurement but also in identifying the most profitable customers, determining the right price, accelerating product innovation, optimizing supply chains, and identifying the true drivers of financial performance (2007). More high performance studies are likely to emerge in the future, partly because the business environment continues to shift and partly because the science of analysis continues to improve.
Ministry of Health (MOH) is committed to ensuring that the public offices are well managed and cost effective in delivering quality service to the public in line with provisions of the constitution of Kenya. PPB holds a vital key to improving the quality of lives of Kenyans and making the country globally competitive; The board's performance contract is to establish the basis for ensuring efficient and effective services are delivered to Kenyans in line with the provisions of the Constitution and by requiring PPB to adopt human rights approach to service delivery and focus on: Ensuring that systems are established for equality for all users of public services, impartiality and fairness, promotion of National Cohesion and National Values, continuity of public services under all circumstances, establishing systems to enable innovativeness and adaptability of public services to the needs of users, institutionalizing a culture of accountability, integrity, transparency and promotion of values and principles of public service. This contract therefore represents a basis for continuous performance improvement that meets the needs and expectations of the Kenyan people.

Training and Performance

Okanya (2008) says that training directly influences on the HR outcomes (employee performance) and puts indirect effect on the organization performance that is mediated with employee performance. Muzffer et al., (2012) said trained employee is an important asset for the organization. Trained employee achieved the long term goals which are valuable for the organization success. Training improves the interpersonal skills of employee. Training maintains the capability of both employees and organization. Training available to employees to meet the needs of both the organization and the employee in order to build and retain a work force of skilled and efficient employees.
Organizational structure and Performance

Organizational structure describes the formal arrangement of jobs and tasks in organizations (Robbins and Coulter, 2007); it describes the allocation of authority and responsibility, and how rules and regulation are executed by workers in firms (Nahm et al., 2003). In organization theory Borgatti (1996) asserts an organization develops based on its size, its technology and its environmental requirements. Borgatti includes degrees and types of horizontal and vertical differentiation control and coordination mechanisms, formalization and centralization of power as determinants of organizational structure. Hierarchical organizations of past years must be flattened to today’s, so as to become process-oriented, learning, team-based, and fast-cycle organizational models; Flat, flexible and focusing on core competence. Inside, empowered, inter-functional teams of knowledge workers are reengineering and continually improving core business processes.

Technology and Performance

Soh and Markus describe the sequence through which technology generates (or fails to generate) organizational performance. It starts out from the assumption that the demand for hardware, software and technology services is a feature of every type of organization and it maintains that only a part of the investment is transformed into assets. Organizational change represents the connecting link between technological resources and the results achieved with them. According to Soh and Markus (1995) the concept of performance cannot be other than complex and multidimensional. Given that all the above-mentioned perspectives are not mutually exclusive but rather find concrete confirmation in reality, the authors propose grouping the various indicators under the single denomination of “organizational performance.”
Continuous improvement (CI) and Performance

The continuous improvement (CI) consists of establishing customer requirements (internal or external), meeting the requirements, measuring success, and continuing to check customers’ requirements to find areas in which improvements can be made (Chang, 2005). According to Bessant et al. (2001) CI is viewed as a particular set of routines that can help an organization to improve performance. Many researchers view CI as a dynamic process, focus on improvement programs and their relationship to other organizational elements in the organization and its environment (Nilsson-Witell et al., 2005). In addition, a number of key routines are considered essential if CI is to be developed to its full potential in an organization, such as productivity, quality, efficiency, learning from experiences, capture and deployment of individual learning, etc. (Nilsson-Witell et al., 2005). Oliver (2009) stated that a learning focus can encourage employees to provide feedback to evaluate performance, enabling the outcomes of the CI activities to be incorporated into the knowledge base within the organization.

Agarwal (2010) identifies business process re-engineering as one of the most popular technologies being adopted by modern healthcare institutions to enhance their performance. Business process re-engineering focuses on helping organizations to undergo radical restructuring and focuses on the ground-up design of their service executions. The primary elements inherent in business process re-engineering include training of staff, structural changes, use of technology and continuous service improvement.

1.1.1 Business process reengineering

Business process reengineering (BPR) is one of the top five issues of concern for IT executives in 2010 (Luftman and Ben-Zvi, 2009). BPR is also beginning to be embraced by public sector
organizations of many countries to reform the traditional function-based bureaucratic system with result and customer-oriented process based system (Ongaro, 2004; Thong et al., 2000). Accordingly, there are now many cases of BPR adoption and implementation in the public sector in general (Sia and Neo, 2008) and public sector of developing economies (DEs) in particular (Mengesha and Common, 2007; Tarokh et al., 2008). The value of BPR can be seen at both process such as cost and time reduction (Grover et al., 1995) and overall organizational performance such as productivity, profitability and market advantages (Ozcelik, 2009) levels.

Most organizations that have undertaken BPR can improve their business processes performance. However, achieving order of magnitude improvements that go beyond process level benefits and that impact overall organizational performance depend not only on reengineering business processes per se but also on creating a set of BPR complementary skills, systems and technologies. These set of skills, systems and technologies are necessary to institutionalize and reinforce the redesigned business processes post-BPR implementation (Ozcelik, 2009). This implies that the degree of investment and change made to BPR complimentary organizational skills, systems and technologies is as important as the process change itself. We refer to such skills, systems and technologies as ‘BPR Complimentary Competences (BPRCC)’.

According to Stoddard and Jarvenpea (1995) Business Process are simply a set of activities that transformed a set of inputs into a set of outputs (goods or services) for another person or process using people and equipments. Business process entails set of logically related tasks performed to achieve a defined business output or outcome. It involves a wide spectrum of activities procurement, order fulfillment, product development, customer service and sale (Sharma 2006).
Thus, Business Process Re-engineering becomes an offshoot of Business Process. Hammer and Champy (1993) argued that “the fundamental reconsideration and radical redesign of organizational process, in order to achieve drastic improvement of current performance in cost, service and speed enjoys a fair measure of consensus. One can then assume that Business Process Re-engineering connotes the analysis and design of workflows and processes within and between organizations (Davenport and Short 1990).

Sharma (2006) posited that business process re-engineering implies transformed processes that together form a component of a larger system aimed at enabling organization to empower themselves with contemporary technologies business solution and innovations. Organizational effective performance has become a watchword in modern business; as a result there is inexorable pressure for Business Process Re-engineering. These questions necessitate venturing of Business Process Re-engineering into the overall strategy for sustained competition advantage, check costs, and differentiate products and effective price management with greater intensity and then flawless execution. At this juncture, it is pertinent to ask what is “Business Process” and as well as “Business Process Re-engineering”. Business processes are characterized by three elements: the inputs, (data such customer inquiries or materials), the processing of the data or materials (which usually go through several stages and may necessary stops that turns out to be time and money consuming), and the outcome (the delivery of the expected result). The problematic part of the process is processing. Business process reengineering mainly intervenes in the processing part, which is reengineered in order to become less time and money consuming (Ozcelik, 2009).
1.1.2 Pharmacy and Poisons Board (PPB)

Njiru (2008) says that the Kenya government forms state corporations to meet both commercial and social goals and that they exist for various reasons including correcting market failure, exploiting social and political objectives, providing education, health, redistributing income or developing marginal areas. The Government of Kenya has since June 2005, required all Boards of state corporations to sign performance contracts with the Government and the Chief Executive Officers to sign performance contracts with their respective Boards and the same being cascaded down to individual staff members. This has been a solid attempt to improve state corporations by ensuring improved and sustained performance and service delivery.

The Pharmacy and Poisons Board is the Drug Regulatory Authority established under the Pharmacy and Poisons Act, Chapter 244 of the Laws of Kenya. The Board is a state corporation under the ministry of health (MOH) which regulates the Practice of Pharmacy and the Manufacture and Trade in drugs and poisons. The Board aims to implement the appropriate regulatory measures to achieve the highest standards of safety, efficacy and quality for all drugs, chemical substances and medical devices, locally manufactured, imported, exported, distributed, sold, or used, to ensure the protection of the consumer as envisaged by the laws regulating drugs in force in Kenya.

The board recently was chosen to host a Regional Centre of Regulatory Excellence (RCOREs) in Africa for Pharmacovigilance. Kenya was selected by New Partnership for Africa’s Development (NEPAD) effective on 2nd May 2014 after beating five African countries National
Regulatory Authorities and Universities including Ghana who had responded to NEPAD call for applications to be considered as Regional Centres of Regulatory Excellence in Africa for Pharmacovigilance in October 2013. This means Kenya is now a model where other African Countries are expected to come to learn Pharmacovigilance activities. The Pharmacy and Poisons Board was nominated by NEPAD, primarily for the regional centre’s ideal location and the quality of services it provides. The criterion for selection was based on training capacity; regulatory capability; Partnerships & collaborations; Training programmes certified by national education accreditation body and/or other accreditation systems; Governance & Management systems and Infrastructure.

With support from partners PPB has prioritized training of health workers and other stakeholders such as representatives of the Pharma industry in Kenya on pharmacovigilance and medicine safety. In March 2014, over 10,000 individuals drawn from the public and private sectors in Kenya had undergone the training. A Pharmacovigilance e-shot, an electronic mailing system used to communicate to subscribers issues of concern has been developed and an online reporting system that allows healthcare workers and consumers of medicines has been launched to submit reports on poor quality medicine or suspected Adverse Drug Reaction (ADR). www.pv.pharmacyboardkenya.org

1.2 Statement of the problem
Regardless of major technological changes across time, Kenyans still continue to undergo frustrations caused by poor health services. The establishment of Medicine Regulatory agencies was motivated by the need to improve service reliability in the Kenyan health sector. However,
the same problems of services inconsistency with user needs continue to be experienced in the sector.

Healthcare agencies in Kenya seem to have not identified the necessity of instituting technological tools and strategies of business process re-engineering. The reason for this failure to participate is that executive managers lack vision of the possible achievements of business process re-engineering, ways of monitoring success and commitment and support (Luke, 2011). This is worsened by inadequate empirical studies concerning the usefulness of business process re-engineering in enhancing customer satisfaction.

Several studies have been conducted both on business reengineering both locally and internationally on business process reengineering. The implementation of BPR has been widely discussed with Disii (2011) focusing on the implementation of business process reengineering at Kenya Ports Authority and Laibon (2014) did a study on the effect of BPR on staff turnover at KK Security Group of Companies. Doyle (2014) focused on Business process re-engineering for the improvement of bank credit operations in South Africa. Hagos (2012) did a study on the BPR implementation and result within the Ethiopian ministry of health and Gambella region.

1.3 Objectives of the study

1.3.1 General Objective

The general objective of this research study was to investigate effect of business process reengineering and performance of Pharmacy and Poisons Board in Kenya.
1.3.2 Specific Objectives

i. To determine how training of staff affect performance of Pharmacy and Poisons Board in Kenya.

ii. To find out the extent to which organizational structure affects performance of Pharmacy and Poisons Board in Kenya.

iii. To determine the extent to which technology affect performance of Pharmacy and Poisons Board in Kenya.

iv. To establish the effect of continuous improvement on performance of Pharmacy and Poisons Board in Kenya.

1.4 Research Questions

i. How does training of staff affect performance of Pharmacy and Poisons Board in Kenya?.

ii. To what extent does organizational structure affects performance of Pharmacy and Poisons Board in Kenya?.

iii. How does technology affect performance of Pharmacy and Poisons Board in Kenya?.

iv. To what extent does continuous improvement affect performance of Pharmacy and Poisons Board in Kenya?.

1.5 Significance of the study

The findings in this study will be beneficial to scholars in the business process reengineering to identify gaps that need to be expounded upon. This study will also be important to the various users of this research information who include government regulators, Pharmacy and Poisons Board, other medical regulatory bodies, government agencies, donors, other stakeholders investors and academia.
The findings in the study will also be useful to top management of the different health regulatory bodies in Kenya since they will be able to know the contribution of business process reengineering as a strategic tool in the Public Health Sector. The study is expected to contribute to the existing pool of literature in the field of Business process reengineering and more specific in the Pharmacy and Poisons Board performance in Kenya.

1.6 Limitation of the study
A number of limitations were anticipated during the study. Due to poor implementation of reports on previous studies which have been conducted by other researchers and professionals within the health sector, therefore the PPB staff were reluctant to give the needed information. The researcher assured the respondents that the study is for academic purpose only. The researcher also made a call before interview to confirm the availability of staff since they seemed to be busy.

1.7 Scope of the study

The study sought to establish effect of business process reengineering and performance of Pharmacy and Poisons Board in Kenya. The study targeted a population of 300 individuals in the following departments Drug registration, Inspectorate, Pharmacy Practice, Finance and administration. For the purpose of this study, primary data was obtained through use of questionnaires. This exercises took a period of three months.
1.8 Organization of the Study

The Chapter one is organized into the following introduction and it contains study background of the study, problem statement, General objective, specific objectives, research questions, significance of the study, limitations of the study, and scope of the study.
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter of the study reviews broadly the theoretical, empirical, critical and aspects of BPR as a tool for organizational performance. It delves into the various theories upon which the study is based. Both performance and BPR have been explored independently and then together by establishing the link between them.

2.2 Theoretical Review

The environment is always changing and the survival of organizations is highly depend on their ability to identify potential threats and come up with ways of dealing with them so as to ensure continuity. Organizations must be responsive to the external demands and expectations in order to survive. Organizations must be responsive to the external demands and expectations in order to survive (Meyer and Rowan, 1977). An organizational strategy is a broad based formula on how a business is going to accomplish its mission, what its goals should be, what plans and policies need to accomplish these goals.

2.2.1 Resource Based View Theory(RBV)

BPR has its root in the resource-based view (RBV) theory. Penrose (1959) provides insights into the resource-based perspective of the firm. The view holds that firms can gain resources than their competitors. The focus is on using the RBV concepts to theories how BPR implementation enhances organizational resources by equipping the organization with effective processes, structures and system that are necessary for the achievement of organizational goals.
As opposed to the externally focused perspective, which relates organizational performance to competitive positioning and environmental factors, the RBV seeks to relate the sources of superior performance to efficient and effective use of internal organizational resources (Barney, 2001). RBV argues that resources have the characteristics to deliver services or produce goods more economically (with less cost) and/or to better meet customer wants. In so doing, organizations with superior resources can deliver greater value to their stakeholders at a lesser cost (Peteraf & Barney, 2003). This theory instigates the first objective to determine how training of staff affect performance of Pharmacy and Poisons Board in Kenya.

2.2.2 Theories of BPR and organizational performance

Several empirical studies have been conducted to establish the link between BPR effort and organizational performance (Ahmed et al., 2007; Abdolvand et al., 2008; Khong & Richardson, 2003). The results of these studies indicated that most organizations that have undertaken BPR achieved numerous benefits, including cost savings through elimination of redundant activities and reducing duplication of work across functions, improved customer focus, better integration across the organization, quality, lead times, speed, flexibility, innovation and improve competitive advantage. In analyzing quality, BPR enhances process quality by ensuring that the end product does not have any defects and therefore reduce wastage, and meets customer expectations.

BPR reduces cycle time by doing a good job of coordinating work across functions. BPR improves delivery speed, delivery reliability, and product development speed (Chase, Aquilano & Jacob, 2004). For speed as a competitive dimension, BPR improves delivering speed by shortening cycle time in serving a customer, minimizing delays in serving a customer, speed up
communication, fastening decision making and shortening the period taken to deliver a service since its request and also develop new products very fast relative to the competition (Slack, Chambers & Johnston, 2007).

BPR equips the organization with necessary tools to be flexible enough to respond to changes in business environment. Flexibility refers to the ability to change the product’s volume, variety and nature (Chase et al., 2004). An organization that can change its product volume depending on demand or offer many other range of products and also be able to customize the product to the customer specification will gain competitive advantage over its competitors who have lesser flexibility in these dimensions. The above theory supports the second objective to find out the extent to which organizational structure affects performance of Pharmacy and Poisons Board in Kenya.

2.2.3 Theories of Quality management and BPR

The effect of TQM practices is shown on employment linked outlook and ultimately on the performance. Education, training, empowerment and collaboration which are the important aspects of TQM appreciably augment job participation, job satisfaction, and management dedication (Karia, Hasmi & Asaari; 1994). BPR was mostly used as well as embracing and appreciating management technique till around 1990 but as time passes now it is becoming unpopular because of people’s mistrust on IT without noticing the fact that IT is one agent of BPR not its driver (Diakins; 1996). In BPR, risk is considered to be present in excess but there are certain conditions for every success and thus in the study there were given some pre conditions for the prevention of failures and making the implementation of BPR successful (Barbara, Meishen and Markus; 2007).
Business Process Reengineering (BPR) has been touted as necessary for dramatic improvements in organizational competitiveness. In practice, there have been successful and unsuccessful cases; thus, there is a need for systematic and rigorous assessment of the factors deemed important to project success in this study, success is defined in three ways: goals and objectives accomplished by the project, benefits derived from the project, and the project's impact on company performance (Guimaraes; Sep 1999).

Some of the large firms of U.S.A are analyzed in order to study the impact of BPR on the performance of the firms and specifically on ROA (return on assets), ROE (return on equity) and labor productivity and it was concluded that the performance of organizations boost after the BPR is totally implemented whereas during the execution phase, it does not affect the performance. Other than this the functionally focused BPR systems affect in a better way as compared to cross-functional. The implication is that TQM needs to be complemented by other resources to more effectively realize the strategy in achieving a high level of performance, particularly innovation (Daniel, Prajogo and Sohail;2006). This theory supports the third objective to determine the extent to which technology affect performance of Pharmacy and Poisons Board in Kenya.

2.2.4 Balanced Score Card(BSC) Theory

Among the four perspectives of BPR, financial perspective is commonly used to assess the performance of a firm. It indicates the manner in which the firm should act to improve the shareholder value. Shareholder value is usually increased when the profitability and sales increase. As in other applications of BSC, some additions may be needed for the BSC and these
can be incorporated with due thought (Lipe and Salterio, 2000). It is also possible to incorporate lead and lag indicators in the perspectives and measures. The area where BPR is planned is the internal business process perspective. Considering the project failures and delays, the project appraisal would attempt to ascertain project metrics and risk management techniques so that possible project delays can be anticipated and managed (Kaplan and Norton, 1996).

BSC approach has been used many organizations to improve their performance management method. Implementation of the BSC has improved the internal processes, made employees more accountable and increased the transparency of the internal departments. One of the reasons is that when measures are considered for performance measurement, they would cut across all departments and all related departments would be responsible. As an example, an indicator such as customer satisfaction would not be the responsibility of the customer relations department but would include the whole project appraisal, project design, monitoring and other departments (Zhang and Li, 2009). The above theory supports the fourth objective To establish the effect of continuous improvement on performance of Pharmacy and Poisons Board in Kenya.

2.2.5 Theory of Performance Management (PM)

PM is related with the comparison of predetermined goals and objectives with the actual output of the employees. If company is able to achieve the desired results of the organization it shows that employees are achieving their objectives optimally otherwise there is the possibility of some underperformed employees, which are not able to achieve their targets (Stredwick, 2000). According to Armstrong and Baron (1998) PM is a strategic and integrated approach towards the performance of individuals and teams who are delivering their best for the success of the
organization. Performance appraisal is the continuous process of monitoring that the organizational goals are achieved in an efficient and effective way (Tyson & York, 2002).

PM is the vital factor for the success of an organization because in the current world human resources are considering to be one of the essential factors for an organization. Employees should know from the start of the year that what their desired goals, objectives and targets are so that during the year he can put his efforts in the right direction for the achievement of the goals. All the employees should know that at the end of the year their supervisors are going to check their performance by comparing the actual results with the desired results and on the basis of this they can be judged as the over performed, satisfactory or underperformed worker. Employees should also know that their pay and package is dependent upon their performance and the employees who are performing well in the current year they get high pay rise after their performance appraisal. This theory supports the depended variable performance of Pharmacy and Poisons Board in Kenya.

2.3 Empirical Review

The relationships between independent variables and organizational performance have been addressed in several studies (Abdolvand et al., 2008; Adeyemi. & Aremu, 2008; Ozcelik, 2010; Khong & Richardson, 2003; Ahmed et al., 2007). This section analyses the association between the variables and improved organizational performance and the gaps. The variables are; Staff training, structure, technology and continuous improvement.
2.3.1 Staff training and performance

According to Wellington (2006), organizations need to assess its people's skills when they are about to bring business process reengineering. Training needs to help them to stay longer in the firm as well as giving morale to employees. Managers and supervisors should play the key role in helping the process of training its juniors is achieved through the best strategy in order for the employees to be conversant with the new systems. Improving the firm's performance and morale through motivation is through continuous training and education to all the participants of the organization growth. Better competitive advantage is achieved through a duration which involves training and knowledge management of the employees. However this is true, the research has failed to show us how training of staff affects organization performance. The research is aimed at determining how training of staff affects organization performance.

2.3.2 Organization structure and performance

Organizational structure(OS) is normally described as the way responsibility and power are allocated, and work procedures are carried out among organizational members. Robbin and DeCenzo (2005) argue that the OS performs a significant role in the achievement of organizations set objectives and accomplishment of its strategic goals and direction. Organization’s structure becomes more relevant when it is in harmony with the objective mission, competitive environment and resources of the organization. They believe “One cap fits all” is non-existence in an organizational structure design as no two firms are entirely similar and as such faces different challenges from its environment.

Mansoor et al. (2012) reportedly assert that performance effect of OS is moderated by changes in the environment and hence, conclude that to attain desired superior performance by an organization adequate attention is required to have OS that can match the prevailing environment
dynamism in place. These structures are characterized with different attributes such as control, communication, organizational knowledge, task, prestige, governance and values. Hajipour, Mohammad and Arash (2011) studied on relationship between industry structure, strategy type and organizational characteristics. Results indicate industry structure determines organizational characteristics. Mansoor et al. (2012) contend that ideal organizational structure is a recipe for superior performance. Organizational structures are discussed in the extant literature with reference to two key factors; formalization and centralization (Bucic & Gudergan, 2004).

Organizational structure includes the nature of layers of hierarchy, centralization of authority, and horizontal integration. It is a multi-dimensional construct in which concerns: work division especially roles or responsibility including specialization, differentiation or departmentalization, centralization or decentralization, complexity; and communication or coordination mechanisms including standardization, formalization and flexibility. The main feature of new organizational structures is the flexibility and the ability to acclimatize to the changing environment (Lenz, 1980). Mintzberg (1979) indicated that an organic structure, with its low degree of formality and high degree of information sharing and decentralization, improves an organization’s flexibility and ability to adapt to continual environment change.

According to Miles and Snow’s (1978) strategy typology organizations with a high-level of adaptation would exhibit a prospector strategy and organic structure while organizations with a low-level of adaptation would adopt a defendant. Oyewobi et al. (2013) study on impact of organizational structure and strategies on construction organizations performance, found that organization structure has no direct impact on both financial and non financial performance.
Qingmin, Helmut and Juergen (2012) study in Austria and China found that organizational structure influence performance directly and indirectly. According to Robbin and DeCenzo (2005) organization structure has two essential functions which are control and coordination.

According to Bucic & Gudergan (2004), organizational structure is the formal system of task and reporting relationships that controls, coordinates and motivates employees so that they cooperate to achieve organizational goals. According to Lenz (1980), organization structure has a direct effect in the success of an organization operation strategy. Lenz (1988) supports the argument that organizational structure shapes performance. Adeoye and Elegunde (2012) found that external environment had impact on organization performance in study of food and beverage industry in Nigeria. This study did not emphasis much on the effects of organization structure on performance but rather focused the formance. This study will fill the gap in the study by Adeoye and Elegunde (2012).

**2.3.3 Technology and Performance**

Most industries have aggressively embraced the use of information technology (IT); however, healthcare is one noticeable exception. According to Miller (2005, p. 42), U.S. hospitals and multiple-facility health systems are "only beginning to round out their clinical networks, but are much farther along than physician practices." While many inpatient or hospital facilities have migrated from paper charts to electronic records little progress has been made in the ambulatory or outpatient setting (Versel, 2002).

Technology is a systematic application of physical forces for production of goods and services. It is the knowledge, process, tools, methods and systems employed in the creation of goods and
improving in services. Technology is the result of man’s learned and acquired knowledge or his technical skills regarding how to do things well (Khalil, 2000). Technological innovation provides the life-blood of economic activities. It is a tool for economic growth and the application of those inventions to meet emerging business opportunities, and to meet social needs, and environmental challenges.

Lucas (1981) highlights the fact that information technology is used to capture, transmit, store, retrieve, manipulate, or display information in one or more businesses. An Information system in an organization provides processes and information useful to its members and clients. It helps it to operate more effectively. The information concerns its customers, suppliers, products, procedures, operations and so on (Avison and Fitzgerald, 2006). The role of IS in an organization are increasing and encompassing all the various activities and the developments approaches have to take these growing considerations into account. According to Chang and King (2005), the Information Systems can be defined as an integration of hardware, software, human skills and management processes that enhance IS performance to maximize the returns on investment. Furthermore, Information systems combine people, hardware, software, data and networks to perform input, processing, output and control activates (O’Brien, 2004).

Vatanasombut et al. (2004) found that maintaining a customer is more challenging on the Internet, suggesting that the level of perceived customer loyalty affects business organizational success. They argued that the level of competition in e-commerce affects the likelihood of retaining customers in the long run. In their study, they identified three dimensions of customer loyalty: reduction in consumers' search costs; lower barrier to entry; and reduced distinctiveness
of firms. Their focus, however, was on how perceived customer loyalty could affect business
organizational success and they found that customers were more likely to deal with large
organizations than small ones because of perceptions that these large organisations had the
capability to offer better services

Magutu et al (2010) conducted a qualitative study on approaches to implementing BPR in an
organization using Wrigley Company as the study organization. The study recognized that to
examine the organization structure when undertaking BPR to maximum gains in the BPR
implementation on its way to achieving operational competitive advantage. Specifically, the
study intended to determine presence of improvement in the competitive advantage in terms of;
cost management, customer service, quality and productivity. The study also sought to
understand if competitive advantage was explained by the key success factors for BPR
implementation. The study finding showed that a company would gain competitive advantage by
implementing BPR. It was also established that it adopted the BPR practices that are critical for
successful implementation. The study by Magutu et al. (2010) recommends that any
organizations undertaking BPR initiatives must first understand the need for changing the
organization and need to ensure that they adopt the key success factors for BPR implementation.
They key success factors include IT, resources among others.

The studies above shows that there is a little research, which has been done on the effect of IT on
the performance of the medical regulatory agencies in Kenya. However, literature has shown
very little concerning the direct effects of IT on the performance of medical agencies. Many
research which have been done majorly dwell on the IT impact on the organization in general.
This paper intends to explore more on the relationship between technology and performance of medical regulatory agencies in Kenya.

### 2.3.4 Continuous improvement and performance

Continuous improvement (CI) is a philosophy that Deming described simply as consisting of “Improvement initiatives that increase successes and reduce failures” (Juergensen, 2000). Another definition of CI is “a company-wide process of focused and continuous incremental innovation” (Bessant et al., 1994). Yet others view CI as either as an offshoot of existing quality initiatives like total quality management (TQM) or as a completely new approach of enhancing creativity and achieving competitive excellence in today’s market (Oakland, 1999; Caffyn, 1999; Gallagher et al., 1997). According to Kossoff (1993), total quality can be achieved by constantly pursuing CI through the involvement of people from all organizational levels.

Jha et al., (1996) define continuous improvement (CI) as a collection of activities that constitute a process intended to achieve performance improvement. In manufacturing, these activities primarily involve simplification of production processes, chiefly through the elimination of waste. In service industries and the public sector, the focus is on simplification and improved customer service through greater empowerment of individual employees and correspondingly less bureaucracy (McLaughlin, 1990). Lindberg and Berger (1997) have studied the applicability of CI in various types of organizations. The authors found that a number of Swedish organizations with a relatively low degree of standardization of products and processes had successfully integrated CI in work teams. The main thrust of the study was to emphasize the fact that in the traditional Japanese industries, kaizen improvements were being achieved by running the kaizen activities parallel to the regular work of the employees, which was in total contrast to
the concept followed by organizations in Sweden, where CI was integrated into the regular work routines.

According to Harrington (1995) “..All organizations need both continuous and breakthrough improvement. When breakthrough improvement and continuous process improvement are combined, the result is a 60 per cent improvement per year over continuous improvement alone.’” However, Harrington concludes, based on empirical evidence, that continuous improvement is the major driving force behind any improvement effort. Breakthrough improvement serves to ‘jump-start’ a few of the critical processes. The studies have failed to elaborate on the effects of continuous improvement on performance and therefore this research intends to fill the gap by establishing the effects of continuous improvement on performance of medical agencies in Kenya

2.4 Critical Review

The relationships between critical success factors (CSFs) of BPR and organizational performance have been addressed in several studies (Abdolvand et al., 2008; Adeyemi. & Aremu, 2008; Ozcelik, 2010; Khong & Richardson, 2003; Ahmed et al., 2007). They indicated a positive association between the CSFs and improved organizational performance. The CSFs of BPR identified from these studies as independent variables, include; 1) Change Management, 2) Management Commitment, 3) Less bureaucratic and flatter organizational structure, 4) Project Management, 5) Customer Focus, 6) Effective process redesign, 7) Adequate financial resources, and 8) Information technology (IT) infrastructure.
Abdolvand et al. (2008) assessed the readiness of two companies from Iran towards the BPR and to understand the degree of success and failure factors effect on the readiness. CSF was categorized in five main success factors while only one main failure factor was taken. The first five categories, egalitarian leadership, collaborative working environment, top management commitment, supportive management, and use of information technology are positive indicators. The sixth category, resistance to change has a negative role. Assessing these factors measures the readiness of initiating a BPR project.

Several empirical studies have been conducted to establish the link between BPR effort and organizational performance (Ahmed et al., 2007; Abdolvand et al., 2008; Khong & Richardson, 2003). The results of these studies indicated that most organizations that have undertaken BPR achieved numerous benefits, including cost savings through elimination of redundant activities and reducing duplication of work across functions, improved customer focus, better integration across the organization, quality, leadtimes, speed, flexibility, innovation and improve competitive advantage. In analyzing quality, BPR enhances process quality by ensuring that the end product does not have any defects and therefore reduce wastage, and meets customer expectations.

BPR reduces cycle time by doing a good job of coordinating work across functions. BPR improves delivery speed, delivery reliability, and product development speed (Chase, Aquilano & Jacob, 2004). For speed as a competitive dimension, BPR improves delivering speed by shortening cycle time in serving a customer, minimizing delays in serving a customer, speed up communication, fastening decision making and shortening the period taken to deliver a service since its request and also develop new products very fast relative to the competition (Slack,
Chambers & Johnston, 2007). BPR equips the organization with necessary tools to be flexible enough to respond to changes in business environment. Flexibility refers to the ability to change the product’s volume, variety and nature (Chase et al., 2004). An organization that can change its product volume depending on demand or offer many other range of products and also be able to customize the product to the customer specification will gain competitive advantage over its competitors who have lesser flexibility in these dimensions.

However some researchers are of the view that BPR is a complex and difficult task and has a high-failure rate. It is therefore not surprising that many organizations are not convinced that the implementation of BPR could bring significant and measurable benefits (Chiplunkar, Deshmukh & Chattopadhyay, 2003; Dennis, Carte & Kelly, 2003; Vergidis, Tiwari & Majeed, 2008). Some factors that may cause failure are: lack of BPR project planning and consideration, lack of proper modeling and ineffective design of goals, having no or narrow focus on technology, resource allocation, and selecting wrong I.T structure for organization (Ranganathan & Dhaliwal, 2001; Smith, 2003).

2.4 Summary and Research Gap

Business process reengineering (BPR) began as a private sector technique to help organizations fundamentally rethink how they do their work in order to dramatically improve customer service, cut operational costs, improve productivity, optimize costs and become world-class competitors. A key stimulus for reengineering has been the continuing development and deployment of sophisticated information systems and networks. Leading organizations are becoming bolder in using this technology to support innovative business processes, rather than refining current ways of doing work.
Empirical studies by different authors reveal that some authors have established a positive relationship between various business process reengineering and performance of Pharmacy and Poisons Board, while others have found a negative relationship. Even studies carried out locally have come up with different findings and conclusions. Some authors found a weak relationship, while others established a strong relationship on this study. In addition, some authors found relationships only in the long-run, while others established long-run and short-run relationship on the same topic of study.


Locally Thiga, (1999) looked at what constitutes BPR in Kenya & Lighting Company Limited Institutional Strengthening Project and concluded that BPR entail restructuring an organization by focusing on the ground-up design of their business processes. Nyaanga (2007) investigated the effects of e-commerce adoption on business process management in Commercial Banks in Kenya where he concluded that BPR is the main way in which organizations become more efficient and modernize and that, it transforms an organization in ways that directly affect performance. Munyiri (2004) did a survey of the use of business process reengineering approach in the Kenyan Pharmaceutical Manufacturing Industry where he concluded that most reengineering approaches share common elements, but simple differences can have a significant impact on the success or failure of a project. Despite the said importance of BPR past study have not adequately addressed the effects of the business process reengineering and performance of
Pharmacy and Poisons Board in Kenya. To this end, this study seeks to investigate effect of business process reengineering and performance of Pharmacy and Poisons Board in Kenya.

2.5 The conceptual framework

The conceptual framework illustrates the dependent and independent variables.

![Conceptual Framework](image)

**Figure 2.2 : Conceptual Framework**

*Source: Author (2016)*
The conceptual model was conceptualization in form of business process reengineering drivers, which are the independent variables and how each influences the dependent variable, performance. The independent variables in this study were training of staff, Organization structure, Technology and Continuous improvement. The dependent variable was performance of PPB.
CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discussed the research methodology that would be used in conducting the study. It would focus on the research design, target population, data collection, and data analysis and presentation techniques. These were carefully chosen to ensure accuracy, reliability and validity in order to realize the objectives of the research. The research aim was to investigate the effect of business process reengineering and performance of Pharmacy and Poisons Board in Kenya.

3.2 Research Design

Saunders, Lewis & Thornhill (2009) recorded that descriptive research design is widely accepted in the field of finance and economics since it is proving to be very useful in policy evaluations. The study adopted the descriptive research design. According to Saunders, Lewis & Thornhill (2009) descriptive technique provides accurate information of persons, situations or events. Descriptive research design was employed to describe the performance of Pharmacy and Poisons Board in Kenya.
3.3 Target population

Table 3.1 Target Population

<table>
<thead>
<tr>
<th>Department</th>
<th>Population Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance and administration</td>
<td>120</td>
<td>40</td>
</tr>
<tr>
<td>Drug registration</td>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td>Inspectorate</td>
<td>80</td>
<td>27</td>
</tr>
<tr>
<td>Pharmacy Practice</td>
<td>40</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>300</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Personnel Records

3.4 Sampling Design

Sampling is the procedure a researcher uses to gather people, places or things to study. It is a process of selecting a number of individuals or objects from a population such that the selected group contains elements representative of the characteristics found in the entire group. A sample is a finite part of a statistical population whose properties are studied to gain information, about the whole (Orodho and Kombo, 2002).

According to Mugenda & Mugenda (2003) a sample size of at least 20% of the total target populace is considered sufficient. Stratification will be used to divide the population into different strata i.e. Finance and administration, Drug registration, Inspectorate and Pharmacy Practice so as to draw randomly a predetermined number of units.
From the above population of 300, the research too a sample of 20% using stratified random sampling technique. This technique is normally used when population of interest is not homogenous. In this case, the researcher intends to draw samples from different departments. This will be done as indicated in table 3.2.

**Table 3.2 Sampling Design**

<table>
<thead>
<tr>
<th>Department</th>
<th>Population frequency</th>
<th>Sample ratio</th>
<th>Sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance and administration</td>
<td>120</td>
<td>0.2</td>
<td>24</td>
</tr>
<tr>
<td>Drug registration</td>
<td>60</td>
<td>0.2</td>
<td>12</td>
</tr>
<tr>
<td>Inspectorate</td>
<td>80</td>
<td>0.2</td>
<td>16</td>
</tr>
<tr>
<td>Pharmacy Practice</td>
<td>40</td>
<td>0.2</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>300</strong></td>
<td></td>
<td><strong>60</strong></td>
</tr>
</tbody>
</table>

**Source: Author(2017)**

### 3.5 Data Collection Instrument

The research adopted a structured closed and open ended questionnaires administered face to face as the main instruments for collecting data relating to the variables. According to Malhotra (2004), structured questionnaire facilitates the collection of information in a systematic and orderly manner as the questions are formulated in advance. The researcher prepared questionnaires since they are the most appropriate tool to gather information. The closed ended questions enabled the researcher to collect quantitative data while open-ended questions enabled the researcher to collect qualitative data. The questionnaire was divided into six sections. Section A gathered data on the general information. Section B to F dwelled on the variables
3.5.1 Validity and reliability of the instrument

The research instrument was examined for its reliability by using Cronbach’s Alpha valve. All the items included in the scale adopted from reviewing literature on technology, Organization structure, Continuous improvement, Training of staff and performance of Pharmacy and Poisons Board in Kenya. This is in line with Ssekaran, (2000) that the research instrument used to collect data from the respondents should be valid and able to yield similar results at all time. The results showed that the instrument was reliable with a coefficient that was above 0.5.

Table 3.3: Reliability Analysis

<table>
<thead>
<tr>
<th>Scale</th>
<th>Cronbach's Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology</td>
<td>0.835</td>
</tr>
<tr>
<td>Organization structure</td>
<td>0.798</td>
</tr>
<tr>
<td>Continuous improvement</td>
<td>0.819</td>
</tr>
<tr>
<td>Training of staff</td>
<td>0.915</td>
</tr>
</tbody>
</table>

Source: Primary data

3.6 Data collection procedure

For the purpose of this study, primary data was obtained through use of questionnaires. This method provides an efficient way of collecting responses from large samples. The questionnaires were delivered by hand and picked later. Where considered necessary, Interviewer-administered Questionnaires were used. Records of past events may also be reviewed to compile evidence of performance.
3.7 Data Analysis and presentation

The questionnaires were checked for completeness and consistency of information at the end of every field data collection day and before storage. Data capturing was done using Excel software. The data from the completed questionnaires were cleaned, re-coded and entered into the computer using the statistical packages for social sciences (SPSS) for Windows for analysis. The SPSS computer program was commanded to produce frequency tables, graphs, pie charts and the necessary measures of variances for interpretation.

Descriptive statistics (that is frequency analysis) was computed for presenting and analyzing the data. Descriptive statistics enables the researcher to describe the aggregation of raw data in numerical terms (Neuman 2000). Descriptive statistics by use of standard deviation, percentages and frequency distribution was used to analyze data. The standard deviation formula:-

\[ s = \sqrt{\frac{\sum (X - \bar{X})^2}{n - 1}} \]

Where:-

S=Sample Stard daviation
\( \sum \) =Sumof...
\( \bar{X} \) =samplemean
n = number of scores in sample.

Regression was used to obtain an equation which describes the dependent variable in terms of the independent variable based on the regression model, (regression is used to determine the type of relationship). Data was presented in the form of frequency distribution tables, graphs and pie charts that facilitated description and explanation of the study findings. Correlation was used to analyze the degree of relationship between the variables in the study. The multiple regression analyses determined whether the group of factors proposed together predict or affect performance of Pharmacy and Poisons Board.

The study used multiple linear regression analysis as presented below; Multiple linear regression was chosen because it provides a rich and flexible framework that suits the needs of many analysts (Montgomery, 2006) and it has been used in similar past studies such as those by Feng et al., 2007; Lin and Jang, 2008.

\[
Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e
\]

Where \( Y \) is the Dependent Variable (Training =1, changes in structure =0), \( X \) is the Independent Variables,

\( X_1 = \) Training,

\( X_2 = \) Changes in structure,

\( X_3 = \) Technology,

\( X_4 = \) Continuous improvement,

\( e = \) Margin error, \( \beta_0 \) represents the constant
$\beta_1, 2, 3, 4$ are regression coefficients.

The study also used a five point Likert scale ranging from 1=strongly disagree to 5=strongly agree for item analysis purpose. Likert scale is easy to use in respondent–centered and stimulus-centered studies (Patton, 2002).

### 3.8 Ethical issues

Resnik (2005) defines ethics as principals or standards that protect the ownership of participants in a research study. They are actions taken to ensure safety and ownership of the participants is not violated whatsoever.

Before data collection commences, I intend to obtain authority to collect the data from the appropriate authorities. First, I obtain a letter from Kenyatta University allowing me to carry out the research for Master Degree course. Lastly, an authority was sought from the PPB to collect data from the organization. The study ensured confidentiality and security of data that was gathered from the respondents. In this regard, all the data collected was kept in safe custody.

The respondents was not be required to write their names on the questionnaire to avoid exposing who gave what information. A letter of request to participate in the study will be addressed to the respondents. This was a show of courtesy to the respondents as well as a mechanism of ensuring informed consent to participate in the study.
CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1. Introduction

This chapter comprises of the analysis, presentation and interpretation of the demographic information of the respondents. The chapter presents results according to the research objectives where data analysis is done in relation to the effect of BPR on performance of Pharmacy and Poisons Board. The study targeted (60) sixty respondents in examining the effect of BPR on performance of Pharmacy and Poisons Board. Out of these, 53 respondents filled in and returned questionnaires giving a response rate of 83.3%. This response rate was excellent and conforms to Mugenda and Mugenda (2003) argument that a response rate of above 70% is excellent for generalization of findings to the whole population.

4.2 Response Rate for the study

The study targeted a sample size of 60 respondents from which 48 filled in and returned the questionnaires making a response rate of 80%. This response rate was good and representative and conforms to Mugenda and Mugenda (2003) stipulation that a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent.

Table 4.1: Response Rate

<table>
<thead>
<tr>
<th>Questionnaires administered</th>
<th>Questionnaires filled &amp; returned</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents</td>
<td>60</td>
<td>48</td>
</tr>
</tbody>
</table>
4.3. Demographic information

In order to achieve the main purpose of this study, the researcher found it useful to find out the background information of the respondents. The background information of the respondents included gender, marital status, age, level of education and work experience.

4.3.1 Gender

The study found it paramount to determine the respondents’ gender in order to ascertain whether there was gender parity in the positions indicated by the respondents. The findings of the study are displayed in figure 4.1. According to the analysis it was evident that majority of the respondents were male which represented 59% while 41% were female.

Acker (2006) observed that gender equality was a very important as a trait as it can be used to improve performance of all the staff involved. He argued that it fosters teamwork and also creates a sense of unity and an aspect of working together for a common goal with every individual effort whether male or female being important to the attainment of the overall objectives. A gender sensitive firm provides a conducive working environment where a staff/manager is supposed to interact with other colleagues of the opposite gender in pursuit of excellence and achievement of set targets.

It can therefore be deduced that male dominated in the various cadres that fall within the main departments of Finance and administration, Drug registration, Trade affairs, Inspectorate, Pharmacy practice and Pharmacovigilance and therefore are the major players in Pharmacy and Poisons Board. However given that the difference was very small it can be inferred that Pharmacy and Poisons Board is a gender sensitive board that provides equal opportunity to both male and female employees.
4.3.2 Respondent Marital Status
The study sought to find respondent marital status the finding of study shows that majority of 62% of the respondents were married, were 38% of the respondent indicated that were single as shown in the figure 4.2 below.

4.3.3 Respondents Distribution by Age
The respondents were required to indicate their age where the study findings indicated that majority (44%) indicated that their age bracket was between 30 and 35 years. Analysis of findings also indicated that 28% of the respondents were between 36 and 40 years of age. The
findings further indicated that 19% were above were less than 30 years of age while 9% were more than 40 years of age.

Jenster& Hussey (2001) in their study of Determining Capability in organizations associated age with employee efficiency in service delivery where they indicated that there is a positive correlation between age and employee performance. He argued the older an employee was the higher the performance up to a certain age where performance would start declining. He therefore presented this relationship using a sigmoid curve.

The finding therefore implies that the respondents were old enough to provide valuable responses that pertain to effect of BPR on performance of Pharmacy and Poisons Board. This fact is further reinforced by the fact that some of the respondents had stayed in the tourism ministry for long hence conversant with the Pharmacy and Poisons Board. The findings of the study are illustrated in figure 4.3 below.

![Figure 4.3 Respondents Distribution by Age](image)

**Figure 4.3 Respondents Distribution by Age**

**4.3.4 Level of Education**

The study sought to find out the respondents level of education in order to ascertain whether academic level of education influenced effect of BPR on performance of Pharmacy and Poisons
Board. The findings of the study are displayed in figure 4.4 from the findings, majority (39%) were diploma holders while 31% of the respondents indicated that they had attained university degree in their respective areas of specialization. This high number of respondents with at least college education may be attributed to the fact that the studies targeted the staff from the departments of Finance and administration, Drug registration, Trade affairs, Inspectorate, Pharmacy practice and Pharmacovigilance. The persons who hold the mentioned portfolios are required to have a minimum of a college certificate. The study further indicated that 13% of the respondents were EACE/ KACE holders while 10% of the respondents indicated that they were KCE/KCSE. Finally the minority of the respondents 7% indicated that they hold CPE/KCPE. From the findings, majority of the respondents had attained academic qualification commensurate with their job designation and it can therefore be inferred that education qualification influences the effect of BPR on performance of Pharmacy and Poisons Board.

Figure 4. 4: Respondents Level of Education

4.3.5 Respondents Work Experience

The study found it necessary to find out the respondents years in service as staff members in the department of Finance and administration, Drug registration, Trade affairs, Inspectorate,
Pharmacy practice and Pharmacovigilance so as to find out the relationship between work experience and effect of BPR on performance of Pharmacy and Poisons Board. The findings of the study are displayed in figure 4.5. Based on the findings, majority (49%) of the respondents had 6-10 year’s experience while 37% had between 11-15 years. It was also revealed that 14% of the respondents had an experience of over 15 years. In a study on the relationship between marketing operations and human capital, (Maria, 2011) found that marketing depends highly on the skills of the human resource. She indicated that the skills can be acquired through experience. From the findings therefore majority of the respondents were experienced and hence can be highly informative on issues that relate to effect of BPR on performance of Pharmacy and Poisons Board. Given that majority of the respondents had substantial work experience, it is therefore expected that the performance of the Pharmacy and Poisons Board would be effective.

![Respondents Work Experience](image)

Figure 4.5: Respondents Work Experience

4.4 Study variables

4.4.1 Performance of Pharmacy and Poisons Board

It was of paramount importance for the study to find out how is the performance of Pharmacy and Poisons Board projects in general. The findings as displayed in table 4.1 indicated that majority (38%) of the respondents were of the view that the performance of Pharmacy and
Poisons Board projects was very high. This was followed by 25% who indicated that the performance of Pharmacy and Poisons Board projects was high. The study further revealed an interesting scenario whereby 18% of the respondents indicated that performance of Pharmacy and Poisons Board projects was fair. It was also notable that minority (10%) of the respondents indicated that performance of Pharmacy and Poisons Board was poor. Finally it was also found out that (9%) performance of Pharmacy and Poisons Board was poor very poor as shown in figure 4.6 below.

![Performance of PPB Projects](image)

**Figure 4.6 Performances of PPB projects**

**Statements that concern performance of Pharmacy and Poisons Board**

The study found it important to find out how Pharmacy and Poisons Board affects performance. The respondents were therefore presented with questions and statements aimed at answering the resultant research question. The findings of the study are discussed below as explored by the research questionnaire.

The respondents were presented with statements that concern performance of Pharmacy and Poisons Board. The respondents were required to rate on a 4 point scale where 1= poor, 2= Average, 3=Good and 4=Excellent. According to the analysis of the findings, respondents indicated with a mean score of 3.55 and standard deviation of 0.701 that Ability to perform
services dependably and accurately. With a mean score of 3.21 and standard deviation of 1.773, the findings further indicated that modern Performance contributes to the overall productivity of the organization in maintaining error free records. The findings further revealed with a mean of 4.87 and a standard deviation of 1.377 that One of the most frequently used tools to improve performance is the performance appraisal process. With a mean score of 4.32 and standard deviation of 1.001 the finding revealed that Performance appraisal motivates an employee in achieving his/her tasks in improving performance of Pharmacy and Poisons Board. With a mean score of 3.41 and standard deviation of 0.974 the finding revealed that Employee participation in decision increases employee productivity in Pharmacy and Poisons Board.

The findings of the study concur with Walker and Ruekert (2007) who found that primary dimensions of business performance could be grouped into the three categories of effectiveness, efficiency, and adaptability.

**Table 4. 1: Performance of Pharmacy and Poisons Board**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to perform services dependably and accurately</td>
<td>3.55</td>
<td>0.701</td>
</tr>
<tr>
<td>Performance contributes to the overall productivity of the organization in maintaining error free records</td>
<td>3.21</td>
<td>1.773</td>
</tr>
<tr>
<td>One of the most frequently used tools to improve performance is the performance appraisal process</td>
<td>4.87</td>
<td>1.377</td>
</tr>
<tr>
<td>Performance appraisal motivates an employee in achieving his/her tasks</td>
<td>4.32</td>
<td>1.001</td>
</tr>
<tr>
<td>Employee participation in decision increases employee productivity in Pharmacy and Poisons Board</td>
<td>3.41</td>
<td>0.974</td>
</tr>
</tbody>
</table>
In line with performance of Pharmacy and Poisons Board, the respondents were presented with the following statements which they were expected to rate on a 5 point likert scale. According to the findings, majority (42%) of the respondents rated performance of Pharmacy and Poisons Board as average in terms of cost reduction while (26%) rated it as good. The findings further revealed that (32%) of the respondents indicated that Pharmacy and Poisons Board performed well rating it as good in employee retention while (21%) indicated that it performed poorly. It was further revealed that (31%) of the respondents rated Pharmacy and Poisons Board in terms of efficiency in service provision as average, (21%) good, (16%) as very good, poor and very poor respectively. In terms of increased revenue, (32%) rated it as good, (26%) as very good and average respectively however (11%) and (5%) of the respondents rated it as being poor and very poor respectively in terms of increased revenue.

Kaplan and Norton (1992) developed a system in which measurements are meant to drive performance where they cited productivity, employees’ motivation and cost efficiency as the rightful measure of performance.

**Table 4. 2: Rating of performance of Pharmacy and Poisons Board using Selected Dimensions**

<table>
<thead>
<tr>
<th></th>
<th>Very good</th>
<th>Good</th>
<th>Average</th>
<th>Poor</th>
<th>Very Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost/loss reduction</td>
<td>21%</td>
<td>26%</td>
<td>42%</td>
<td>10%</td>
<td>0</td>
</tr>
<tr>
<td>Employee retention</td>
<td>16%</td>
<td>32%</td>
<td>26%</td>
<td>21%</td>
<td>5%</td>
</tr>
<tr>
<td>Efficiency in service provision</td>
<td>16%</td>
<td>21%</td>
<td>31%</td>
<td>16%</td>
<td>16%</td>
</tr>
<tr>
<td>Increased revenue</td>
<td>26%</td>
<td>32%</td>
<td>26%</td>
<td>11%</td>
<td>5%</td>
</tr>
</tbody>
</table>
4.4.2 Training of staff and performance of Pharmacy and Poisons Board

The study sought to find out the effect of staff training on performance of pharmacy and poisons board. The respondents were therefore presented with statements and questions where they were expected to express their opinion. The findings of the study are discussed below.

4.4.2.1 Frequency of Training

The respondents were asked to indicate the frequency with which they undertake formal training as employees of Pharmacy and Poisons Board. The findings of the study are illustrated in figure 4.7. According to the analysis of the findings, majority (41%) of the respondents indicated that they medical regulatory agencies in Kenya attended formal training facilitated by sometimes when need arises followed by 37% who indicated that they attended formal training often. The study further revealed that 22% of the respondents were of the view that they attended formal training very often especially Finance and administration, Drug registration, Trade affairs, Inspectorate, Pharmacy practice and Pharmacovigilance staff in charge of performance of Pharmacy and Poisons Board. The respondents indicated that the training was both in house or outside workshops and seminars with a majority indicating outside seminars and workshops. However all respondents indicated that they had attended either or both.

Tas (2008) recognized frequent career specialty training provides employees with the opportunity to enhance knowledge, skills, and abilities necessary to perform jobs beyond the minimum level and that it also allows employees the opportunity to explore new areas of interest and specialization that will enhance abilities and skills in other specialized jobs.
The respondents were asked to indicate whether they were pursuing college or university education as part of their training. The findings as illustrated in figure 4.8 indicates that majority (53%) of the respondents indicated that they were not pursuing any additional college or university education as part of their training while 47% agreed.

A study by World Bank (2000) indicated that there was a strong relationship between staff training and efficient service delivery in the Pharmacy and Poisons Board where it was observed that the persons with higher education and professional training provided efficient services as compared to their counter parts with low levels of education.

The proportion of the respondents pursuing further learning is considerably high which could be attributed to the Pharmacy and Poisons Board commitment in promoting employees career enhancement and development.
4.4.1.3 Improving Performance of the Pharmacy and Poisons Board

The study sought to find out ways of improving performance in the Pharmacy and Poisons Board. The respondents were therefore presented with statements which they were required to rate. The findings of the study are shown in table 4.4. According to the analysis of the findings, majority 13(68%) of the respondents indicated that management courses programmes for Finance and administration, Drug registration, Trade affairs, Inspectorate, Pharmacy practice and Pharmacovigilance personnel was very important in improving performance of Pharmacy and Poisons Board. The study further indicated that quality and quantity of staff needed to run a Pharmacy and Poisons Board was very important as indicated by 58%, 27% indicating that it was very important while 15% indicating that it was fairly important. The study revealed that mentoring by seniors played a major role in improving performance of the Pharmacy and Poisons Board with 32% indicating that it was very important while 52% rated it as being important. The findings of the study as indicated in table 4.4 demonstrated that staff with wide experiences of challenging assignments plays a crucial role in improving performance of
Pharmacy and Poisons Board. In line with this statement 44% rated it as being very important while 21% rated it as important.

The finding of the study concurs with Thompson and Strickland (2001) who stated that developing strategies is one of the tasks needed to achieve unity and coherence between the firm’s internal ability, sources and skills with the external factors which are related to the firm. Ngulube and Tafor (2006) in a study on impact of management of records in the public sector in Africa observed that the major constraints in management included lack of staff and appropriate training, inadequate funding to maintain records and the digital divide.

From the findings, it can be deduced that Finance and administration, Drug registration, Trade affairs, Inspectorate, Pharmacy practice and Pharmacovigilance personnel need to be well trained in strategic management and leadership because the quality and quantity of staff needed to run a Finance and administration, Drug registration, Trade affairs, Inspectorate, Pharmacy practice and Pharmacovigilance affects overall effectiveness of Pharmacy and Poisons Board.
Table 4. 3: Improving Performance of the Pharmacy and Poisons

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very important</th>
<th>Important</th>
<th>Fairly Important</th>
<th>Not Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff with wide experiences of challenging assignments</td>
<td>44%</td>
<td>21%</td>
<td>524%</td>
<td>11%</td>
</tr>
<tr>
<td>Quality and quantity of staff needed to run Finance and administration, Drug registration, Trade affairs, Inspectorate, Pharmacy practice and Pharmacovigilance</td>
<td>58%</td>
<td>27%</td>
<td>15%</td>
<td>0</td>
</tr>
<tr>
<td>Management courses/leadership programmes for and administration, Finance Drug registration, Trade affairs, Inspectorate, Pharmacy practice and Pharmacovigilance personnel</td>
<td>68%</td>
<td>26%</td>
<td>6%</td>
<td>0</td>
</tr>
<tr>
<td>Self driven techniques</td>
<td>37%</td>
<td>44%</td>
<td>16%</td>
<td>3%</td>
</tr>
<tr>
<td>Mentoring by seniors</td>
<td>32%</td>
<td>52%</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Skills in record management</td>
<td>21%</td>
<td>7%</td>
<td>37%</td>
<td>5%</td>
</tr>
</tbody>
</table>

4.4.2 Organization Structure

The study sought to find out Level of agreement with statements regarding the effect of Changes in Structure and Reporting Channels. The respondents were therefore presented with statements which they were required to rate. As shown in table 4.5 below.

According to the findings, on the Changes in chains of command in the organization led to setting of better quality goals 50% of the respondents strongly agreed; 34.1% agreed; 7.1% disagreed; 1.6% strongly disagreed. 43.7% Majority of the respondents strongly agreed that Changes in chains of command in the organization led to Faster employee response and completion of work 19.5% agreed 14.3% were neutral 18.4% disagreed while 4.1% strongly disagreed on statement regarding Job redesign in the organization led to enhanced teamwork and
better performances from staff majority 74.6% agreed; 15% strongly agreed; 6% were neutral; 2.4% disagree; 2% strongly disagreed on Changes in chains of command in the organization led to enhanced employee commitment and availability at work 40.8% of the respondent strongly agreed; 31% agreed; 15.9% were neutral 8.2% disagreed while 4.1% strongly disagreed. On statement regarding Changes in span of control in the organization led to enhanced teamwork and better performances from staff26.5% were neutral; 22.1% strongly agreed; 33% agreed; 8.2% disagreed while 10.2% strongly disagreed. Finally on Changes in work teams in the organization led to enhanced employee commitment and availability at work majority 75.6% agreed to the statement; 14% strongly agreed; 6% were neutral; 3.4% disagreed while 2% strongly disagreed as shown by mean of 3.5, 4.4, 4.4, 4.1, 3.5 and 4.5 respectively.

These findings relate with the literature review where Bucic & Gudergan (2004), found out that organizational structure is the formal system of task and reporting relationships that controls, coordinates and motivates employees so that they cooperate to achieve organizational goals. Further, the study found that there is an increased achievement on changes in structure and reporting channels with employees and increased performance. The study infers that changes in structure and reporting channels helps Pharmacy and Poisons Board employees to take action to accomplish assigned tasks provided also it plays an important role in motivating employees to achieve superior performance.
Table 4. 4: Respondents level of agreement with statements regarding changes in structure and reporting channels.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changes in chains of command in the organization led to setting of better quality goals</td>
<td>50</td>
<td>34.1</td>
<td>7.2</td>
<td>7.1</td>
<td>1.6</td>
<td>3.5</td>
</tr>
<tr>
<td>Changes in chains of command in the organization led to Faster employee response and completion of work</td>
<td>43.7</td>
<td>19.5</td>
<td>14.3</td>
<td>18.4</td>
<td>4.1</td>
<td>4.4</td>
</tr>
<tr>
<td>Job redesign in the organization led to enhanced teamwork and better performances from staff</td>
<td>15</td>
<td>74.6</td>
<td>6</td>
<td>2.4</td>
<td>2</td>
<td>4.4</td>
</tr>
<tr>
<td>Changes in chains of command in the organization led to enhanced employee commitment and availability at work</td>
<td>40.8</td>
<td>31</td>
<td>15.9</td>
<td>8.2</td>
<td>4.1</td>
<td>4.1</td>
</tr>
<tr>
<td>Changes in span of control in the organization led to enhanced teamwork and better performances from staff</td>
<td>22.1</td>
<td>33</td>
<td>26.5</td>
<td>8.2</td>
<td>10.2</td>
<td>3.5</td>
</tr>
<tr>
<td>Changes in work teams in the organization led to enhanced employee commitment and availability at work</td>
<td>14</td>
<td>75.6</td>
<td>6</td>
<td>3.4</td>
<td>2</td>
<td>4.5</td>
</tr>
</tbody>
</table>

4.4.3 Information Technology and performance of Pharmacy and Poisons Board

The third objective of the study was to find out how information technology affects performance of Pharmacy and Poisons Board in the medical regulatory agencies sector in Kenya. The respondents were therefore presented with questions and statements aimed at answering the resultant research question. The findings of the study are discussed below as explored by the research questionnaire.
4.4.3.1 Automation of the Pharmacy and Poisons Board

The respondents were asked to indicate whether PPB was computerized. The majority (95%) of the respondents indicated that PPB was computerized while 5% disagreed. The findings of the study are displayed in figure 4.9.

Karplus (2007) in a study on innovation in China’s revealed that technology was a major factor affecting management in China’s energy sector. They recommended that high level of technology be adopted in order to increase throughput or service delivery with higher level of accuracy and reliability in a diligent manner, improve service quality or increased predictability of service quality and improve robustness (consistency) of the service provision.

The findings of the study shows that PPB not only needs to automate all pharmacy operations but also ensure they acquire and install modern automation gadgets to ensure high degree of accuracy where required, reduce cycle time and replacing humans in tasks done in dangerous environments among other accruing benefits. Therefore the need for adoption of high level of technology by Pharmacy and Poisons Board cannot be overemphasized given the nature of Pharmacy and Poisons operation where equipment’s and components used are usually highly sophisticated.

Figure 4.9: Automation of the Pharmacy and Poisons Board
4.4.3.2 Use of Information Technology in Pharmacy and Poisons Board

The respondents were presented with statements that concerned the use of information technology in Pharmacy and Poisons Board where they were required to tick the one that best described their opinion. They were to rate the statements on a 5 point likert scale where 1=strongly disagree, 2= disagree, 3=neutral, 4=Agree and 5= strongly agree. The findings of the study are displayed in table 4.5. According to the analysis of findings, the respondents indicated that in general IT had helped PPB manage Pharmacy and Poisons inventories more effectively and streamline operations with a mean score of 4.61 and a standard deviation of 0.958 which implies that majority of the respondents coalesced around the same response without differing to a great extent across all the selected Pharmacy and Poisons Board.

The findings further indicated that when the technology used in Pharmacy and Poisons Board operations becomes common, the competitive advantage is lost implying that there is need of constant replacement of obsolete or outdated technologies with modern ones. This statement was supported by respondents with a mean score of 4.52 and a standard deviation of 1.908. Further, the analysis of findings indicated with a mean score of 4.02 and a standard deviation of 0.354 that adoption of modern technology in handling Pharmacy and Poisons Board operations has enabled Medical regulatory to react more promptly to market signals. The study also revealed that use of transactional IT investment is significantly associated with effective performance as indicated by respondents with a mean score of 4.01 and a standard deviation of 0.954. It is noteworthy that with a mean score of 3.77 and a standard deviation of 1.142 that the respondents agreed that investment in new types of IT had enabled PPB to improve efficiency in and
coordination of Pharmacy and Poisons operations. The other findings of the study are indicated in table 4.5.

Weill (2003) observed that the relationship between use of information technology and firm performance was highly significant. The study presented the results of an empirical test of the performance effects of IT use in the manufacturing sector using six years of historic data on investment and use of IT. The findings of the study was further in agreement with Frohlich and Westbrook (2002) who observed that IT investments have clearly played a leading role in growth of firms who have invested substantial resources in new types of IT enabling them to improve efficiency in and coordination.

From the findings, it can be deduced that modern technology comes with efficiency in operations and reduced waiting cost. It is hence undoubtedly that PPB use of information technology in its operations can increase efficiency and effectiveness in service provision as well as overall performance.
4.4.4 Effects of continual improvement

The study further sought to find out whether the organization has continual improvement policies. From the findings, majority (74%) of the respondents attested organization has continual improvement policies while minority (26%) disagreed as shown on figure 4.10 below.

The findings of the study collaborated with Kossoff (1993), who found out that total quality can be achieved by constantly pursuing Continuous improvement through the involvement of people from all organizational levels.

Table 4. 5: Use of Information Technology in performance of Pharmacy and Poisons Board

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of transactional IT investment is significantly associated with effective Pharmacy and Poisons Board management.</td>
<td>4.01</td>
<td>0.954</td>
</tr>
<tr>
<td>When the technology used in Pharmacy and Poisons Board operations becomes common, the competitive advantage is lost.</td>
<td>4.52</td>
<td>1.098</td>
</tr>
<tr>
<td>Investment in new types of IT has enabled PPB to improve efficiency in and coordination of operations,</td>
<td>3.77</td>
<td>1.142</td>
</tr>
<tr>
<td>PPB has managed to reduce levels by use of modern technology.</td>
<td>4.42</td>
<td>1.054</td>
</tr>
<tr>
<td>Use of information technology in the PPB has improved the dissemination of information to other departments.</td>
<td>3.62</td>
<td>0.598</td>
</tr>
<tr>
<td>Adoption of modern technology in handling PPB operations has enabled PPB to react more promptly to market signals.</td>
<td>4.02</td>
<td>0.354</td>
</tr>
<tr>
<td>Increase in IT investments results in higher returns and lower holding costs</td>
<td>3.31</td>
<td>0.598</td>
</tr>
<tr>
<td>IT allows business partners to share information related to customer orders</td>
<td>3.12</td>
<td>0.054</td>
</tr>
<tr>
<td>In general IT has helped PPB manage inventories more effectively and streamline operations.</td>
<td>4.61</td>
<td>0.958</td>
</tr>
</tbody>
</table>
4.4.4.1 Effects of continuous improvement on performance of Pharmacy and Poisons Board

The respondents were presented with statements regarding the effects of continuous improvement on performance of Pharmacy and Poisons Board which they were supposed to rate on a 5 point likert scale. From the findings, the respondents indicated with a mean score of 2.82 and a standard deviation of 1.061 that Continuous Improvement initiatives that increase successes and reduce failures. Analysis of the findings further indicated that in service industries and the public sector, the focus is on simplification and improved customer service through greater empowerment of individual employees and correspondingly less bureaucracy with a mean of 3.15 and standard deviation of 0.336. The study also revealed with a mean score of 2.95 and a standard deviation of 1.029 that Standardization of products and processes had successfully integrated CI in work teams. It was also found out that Continuous improvement is the major driving force behind any improvement efforts as shown by a mean of 3.22 and standard deviation of 0.436. Finally it was found out that All organizations need both continuous and breakthrough
improvement as indicated by mean of 3.26 and standard deviation of 0.456. The study is indicated in table 4.7.

According to Harrington (1995) “.All organizations need both continuous and breakthrough improvement. When breakthrough improvement and continuous process improvement are combined, the result is a 60 per cent improvement per year over continuous improvement alone.”.

**Table 4.7: Effects of continuous improvement**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous Improvement initiatives that increase successes and reduce failures</td>
<td>2.82</td>
<td>1.061</td>
</tr>
<tr>
<td>In service industries and the public sector, the focus is on simplification and improved customer service through greater empowerment of individual employees and correspondingly less bureaucracy</td>
<td>3.15</td>
<td>0.336</td>
</tr>
<tr>
<td>Standardization of products and processes had successfully integrated CI in work teams</td>
<td>2.95</td>
<td>1.029</td>
</tr>
<tr>
<td>Continuous improvement is the major driving force behind any improvement effort</td>
<td>3.22</td>
<td>0.436</td>
</tr>
<tr>
<td>All organizations need both continuous and breakthrough improvement.</td>
<td>3.26</td>
<td>0.456</td>
</tr>
</tbody>
</table>

**4.5 Regression Analysis**

**Table 4.8: Regression Model**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.853a</td>
<td>0.728</td>
<td>0.673</td>
<td>1.673</td>
</tr>
</tbody>
</table>
a. Predictors: (Constant), Training of staff, changes in structure and reporting channels, technology, and continuous improvement.

Table 4.8 is a model fit which establish how fit the model equation fits the data. The adjusted $R^2$ was used to establish the predictive power of the study model and it was found to be 0.673 implying that 67.3% of the variations in performance of Pharmacy and Poisons Board are explained by Training of staff, changes in structure and reporting channels, technology, and continuous improvement. 32.7% unexplained. Therefore, further studies should be done to establish the other factors (32.7%) affecting performance of Pharmacy and Poisons Board.

Table 4.6: Summary of One-Way ANOVA results of the regression analysis between performance of Pharmacy and Poisons Board and predictor variables

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>172.152</td>
<td>4</td>
<td>43.038</td>
<td>13.366</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>64.4</td>
<td>20</td>
<td>3.220</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>236.552</td>
<td>24</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Training of staff, changes in structure and reporting channels, technology, and continuous improvement

b. Dependent Variable: Performance of Pharmacy and Poisons Board

The probability value of 0.000 shown in table 4.9 indicates that the regression relationship was highly significant in predicting how Training of staff, changes in structure and reporting channels, technology, and continuous improvement affected performance of Pharmacy and Poisons Board. The F calculated at 5 percent level of significance was 13.366 since F calculated is greater than the F critical (value = 2.87), this shows that the overall model was significant.
Table 4.10: Coefficients of regression equation

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>1.329</td>
<td>0.473</td>
<td></td>
<td>2.825</td>
</tr>
<tr>
<td>Training of staff</td>
<td>0.638</td>
<td>0.172</td>
<td>0.205</td>
<td>3.709</td>
</tr>
<tr>
<td>Organization structure</td>
<td>0.576</td>
<td>0.155</td>
<td>0.693</td>
<td>3.716</td>
</tr>
<tr>
<td>Technology</td>
<td>0.605</td>
<td>0.187</td>
<td>0.222</td>
<td>3.235</td>
</tr>
<tr>
<td>Continuous improvement</td>
<td>0.537</td>
<td>0.159</td>
<td>0.468</td>
<td>3.377</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Performance of Pharmacy and Poisons Board

The regression findings in table 4.10 has established that taking all factors into account (Training of staff, changes in structure and reporting channels, technology, and continuous improvement) constant at zero Performance of Pharmacy and Poisons Board will be 1.329. The findings presented also show that taking all other independent variables at zero, a unit increase in Training of staff would lead to a 0.638 increase in Performance of Pharmacy and Poisons Board and a unit increase in changes in structure and reporting channels would lead to a 0.576 increase in the Performance of Pharmacy and Poisons Board. Further, the findings shows that a unit increase in technology lead to a 0.605 increase in Performance of Pharmacy and Poisons Board while a unit increase in continuous improvement would lead to a 0.537 increase in the Performance of Pharmacy and Poisons Board.

In terms of magnitude, the findings indicated that training of staff have the highest effect on Performance of Pharmacy and Poisons Board followed by Technology, then organization...
structure while Continuous improvemethad the least effect on Performance of Pharmacy and Poisons Board. All the variables were significant as their P-values were less than 0.05.

The established optimal model for the study was:

\[ Y = 1.329 + 0.638X_1 + 0.576X_2 + 0.605X_3 + 0.537X_4 \]
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the study and makes conclusion based on the findings. The recommendations of the study and areas for further research are also presented. This section presents the findings from the study in comparison to what other scholars have said as noted under literature review.

5.2 Summary of Findings

5.2.1 Effect of training of staff on performance of Pharmacy and Poisons Board

Based on the findings of the study, majority, majority (41%) of the respondents indicated that they medical regulatory agencies in Kenya attended formal training facilitated by sometimes when need arises followed by 37% who indicated that they attended formal training often. The study further revealed that 22% of the respondents were of the view that they attended formal training very often especially Finance and administration, Drug registration, Trade affairs, Inspectorate, Pharmacy practice and Pharmacovigilance staff in charge of performance of Pharmacy and Poisons Board. The respondents indicated that the training was both in house or outside workshops and seminars with a majority indicating outside seminars and workshops. However all respondents indicated that they had attended either or both.

The study established that training of staff is an attempt to improve performance by increasing the staff skills and ability to perform, creating and sharing an organizational goal, acting as a role model, training and development programs are designed to educate employees beyond the requirements of their current position so that they are prepared for a broader and more
challenging role in the organization. It revealed that the training allowed employee participation in making jobrelated decisions, encouraging creativeness, providing support for staff, training is the process of imparting knowledge and skills and presents employees or beneficiaries with the skills they need to perform their jobs better.

5.2.2 Effects of technology on performance of Pharmacy and Poisons Board

Based on the findings, the majority (95%) of the respondents indicated that PPB was computerized while 5% disagreed. The findings of the study shows that PPB not only needs to automate all pharmacy operations but also ensure they acquire and install modern automation gadgets to ensure high degree of accuracy where required, reduce cycle time and replacing humans in tasks done in dangerous environments among other accruing benefits. Therefore the need for adoption of high level of technology by Pharmacy and Poisons Board cannot be overemphasized given the nature of Pharmacy and Poisons operation where equipment’s and components used are usually highly sophisticated.

5.2.3 Effects of Organization structure on performance of Pharmacy and Poisons Board

According to the findings, on the Changes in chains of command in the organization led to setting of better quality goals 50% of the respondents strongly agreed; 34.1% agreed; 7.1% disagreed; 1.6% strongly disagreed. 43.7% Majority of the respondents strongly agreed that Changes in chains of command in the organization led to Faster employee response and completion of work 19.5% agreed 14.3% were neutral 18.4% disagreed while 4.1% strongly disagreed on statement regarding Job redesign in the organization led to enhanced teamwork and better performances from staff majority 74.6% agreed; 15% strongly agreed; 6% were neutral; 2.4% disagree; 2% strongly disagreed on Changes in chains of command in the organization led to enhanced employee commitment and availability at work 40.8% of the respondent strongly
agreed; 31% agreed; 15.9% were neutral 8.2% disagreed while 4.1% strongly disagreed. On statement regarding Changes in span of control in the organization led to enhanced teamwork and better performances from staff 26.5% were neutral; 22.1% strongly agreed; 33% agreed; 8.2% disagreed while 10.2% strongly disagreed. Finally on Changes in work teams in the organization led to enhanced employee commitment and availability at work majority 75.6% agreed to the statement; 14% strongly agreed; 6% were neutral; 3.4% disagreed while 2% strongly disagreed as shown by mean of 3.5, 4.4, 4.4, 4.1, 3.5 and 4.5 respectively.

The study established that the organizational structure affects the business process reengineering and performance of Pharmacy and Poisons Board in Kenya to a great extent. The study further revealed that the organization embraces freedom of expression during business process reengineering. Organization size affects business process reengineering and performance of Pharmacy and Poisons Board in Kenya while supervisors delegate duties and functions during business process reengineering. It was found out that the organization structure affects business process reengineering and performance of Pharmacy and Poisons Board in Kenya through meetings and discussion, freedom of expression, delegation of duties and functions, organization charts, organization Size allow performance of Pharmacy and Poisons Board in Kenya.

**5.2.4 Effects of continuous improvement on performance of Pharmacy and Poisons Board**

From the findings, the respondents indicated with a mean score of 2.82 and a standard deviation of 1.061 that Continuous Improvement initiatives increase successes and reduce failures. Analysis of the findings further indicated that service industries and the public sector, the focus is on simplification and improved customer service through greater empowerment of individual employees and correspondingly less bureaucracy with a mean of 3.15 and standard deviation of
0.336. The study also revealed with a mean score of 2.95 and a standard deviation of 1.029 that Standardization of products and processes had successfully integrated CI in work teams. It was also found out that Continuous improvement is the major driving force behind any improvement efforts as shown by a mean of 3.22 and standard deviation of 0.436. Finally it was found out that All organizations need both continuous and breakthrough improvement as indicated by mean of 3.26 and standard deviation of 0.456.

5.2.5 Performance of Pharmacy and Poisons Board

According to the findings, majority 42% of the respondents rated performance of Pharmacy and Poisons Board as average in terms of cost reduction while 26% rated it as good. The findings further revealed that 32% of the respondents indicated that Pharmacy and Poisons Board performed well rating it as good in employee retention while 21% indicated that it performed poorly. It was further revealed that 31% of the respondents rated Pharmacy and Poisons Board in terms of efficiency in service provision as average, 21% good, 16% as very good, poor and very poor respectively. In terms of increased revenue, 32% rated it as good, 26% as very good and average respectively however 11% and 5% of the respondents rated it as being poor and very poor respectively in terms of increased revenue.

5.3 Conclusion

The study concluded that staff in PPB attended formal training facilitated by the company which included both in-house and outside workshops, seminars and training sessions. In relation to staff training, the study concluded that a significant proportion of the personnel were furthering their education in institutions of higher learning indicating the commitment of PPB in promoting career development/enhancement among its employees.
From the findings the researcher concluded that level of staff training influences the business process reengineering and performance of Pharmacy and Poisons Board in Kenya to great extent. It was further established that training was meant to improve business process reengineering and performance of Pharmacy and Poisons Board in Kenya by increasing the staff’s ability to perform, creating and sharing an organizational goal, acting as a role model, training and development programs are designed to educate staff beyond the requirements of their current position.

Secondly the study concluded that organizational structure is the formal system of task and reporting relationships that controls, coordinates and motivates employees so that they cooperate to achieve organizational goals. Organization structure has a direct effect in the success of an organization operation strategy.

Based on the findings, it can be concluded that Pharmacy and Poisons Board has automated most of operation and hence technology is a major contributor to effective performance of Pharmacy and Poisons Board. It was further concluded that use of technology had helped PPB manage inventories more effectively and streamline operations. According to the analysis of findings, replacement of obsolete technology equipments was not being done promptly however in areas where adoption of modern technology had been implemented, delivery of service was found to be faster while the inventory was being economized.

Many Pharmacy and Poisons Board in Kenya report that technology-enabled BPR improves performance in terms of costs savings, quality breakthrough, better customer services, time reduction, and revenue increases (Morris and Brandon, 1993). However, empirical data for the linkage between technology impact and BPR is rare, and how these technologies affect business
reform remains unclear. The literature lacks a full and complete picture of the inter-relations among technology adoption, technology-enabled BPR, and related performance.

As far as continuous improvement is concerned, the study concluded that Pharmacy and Poisons Board, the focus is on simplification and improved customer service through greater empowerment of individual employees and correspondingly less bureaucracy. The study also concluded that Standardization of products and processes had successfully integrated CI in work teams. Since Continuous improvement is the major driving force behind any improvement effort

5.4 Recommendations

On the basis of staff training, the study recommended that Pharmacy and Poisons Board should encourage more of its employees to further their education by enrolling in institutions of higher learning and tertiary colleges in order to achieve the required development objectives and the range of competencies, knowledge and skills which are necessary to meet effectively the career development needs of human resources handling medical and pharmacy operations. The study also recommended that proficiency in-service training as a component of the career development initiative must be closely coordinated with the organization's training efforts. This benefits both the Pharmacy and Poisons Board and its employees by keeping them up-to-date on duties and responsibilities within present job assignments as Finance and administration, Drug registration, Trade affairs, Inspectorate, Pharmacy practice and Pharmacovigilance personnel.

In relation to organizational structure, the study recommended that Pharmacy and Poisons Board should structure their organization depending on their objectives. Since structure of an organization will determine the modes in which it operates and performs. Organizational
structure allows the expressed allocation of responsibilities for different functions and processes to different department, workgroup and individual.

The study recommended that Pharmacy and Poisons Board fully automates its operations besides replacing obsolete technology equipments with modern ones. The greatest potential of automation is not expected to be from the improvement of clerical and administrative tasks, but from the ability of managers and other personnel to gain increased control over their operations. The major reasons as to why Pharmacy and Poisons Board should consider fully automated systems are; first is a critical need to improve the performance. The second reason for interest in automation is the increasing complexity of organizational decision making and information needs.

The study recommended that Pharmacy and Poisons Board should fully practice continuous improvement on performance unless Pharmacy and Poisons Board improve on their processes by simplifying, standardizing and consolidating to reduce complexity, lesser errors, and they’ll have a hard time executing on their strategies. Organizations that are able to have continuous improvement and improve their processes are typically less rigid and more flexible than their competitors, and so are better able to develop and market differentiated products appealing to a wider range of customers. They can more easily scale up, or down, in response to market trends and client needs.

5.5 Suggestions for Further Research

The study established the effect of BPR on performance of Pharmacy and Poisons Board. The study narrowed its research undertaking into Training of staff, changes in structure and reporting channels, technology, and continuous improvement. Since the study was carried out in one
agency Pharmacy and Poisons Board, it is important to undertake similar study in other agencies and also to establish other factors that affect the performance of medical regulatory agencies in Kenya.
References


Appendix 1: Introduction letter

Letter of Introduction

Kenyatta University,
Department of Business Administration,
P.O. Box 43844,
Nairobi.

Dear Sir/Madam,

**RE: permission to carry out research in your organisation**

I am a post graduate student at Kenyatta University. I am currently undertaking a Masters of Business Administration research on analysis of the business process reengineering practices on medical regulatory bodies in Kenya (case of Pharmacy and Poisons Board). Kindly assist me by completing the questionnaire as freely and honestly as possible. Any information given will be used for academic purpose only and it will be treated in strict confidence.

Thank you in advance.

Yours faithfully,

Naibei Immaculate
Appendix ii: Questionnaire

INSTRUCTIONS

This questionnaire consists of two parts; kindly answer all the questions by ticking in the appropriate box provided. Please do not write your name anywhere on the form. Your views will be treated with utmost confidentiality, for purely academic purposes only.

SECTION A: DEMOGRAPHICS

Research Site ____________________________

Department : ____________________________

Section : ________________________________

Section 1: Please tick () against your choice or fill the blank spaces.

I. Gender Male ☐ Female ☐

2. Marital status Married ☐ Single ☐

3. Age:

30 years or less ☐ 30-35 years ☐ 36-40 years ☐ 41-45 years ☐ Over 45 years ☐

4. Indicate your highest academic level?

Degree ☐ Diploma ☐ EACE/ KACE ☐ KCE/KCSE ☐ CPE/KCPE ☐

5. For how long have you been an employee of your current organization?

6-10 years ☐ 11-15 years ☐ 16-20 years ☐ more than 20 years ☐
SECTION B: PERFORMANCE OF PPB

6. How is the performance of PPB projects in general?
Very high  High  Fair  Poor  Very poor

7. To what extent do you agree with the following statements about effect of performance of Pharmacy and Poisons Board?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to perform services dependably and accurately</td>
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<tr>
<td>Performance contributes to the overall productivity of the organization in maintaining error free records</td>
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<tr>
<td>One of the most frequently used tools to improve performance is the performance appraisal process</td>
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<tr>
<td>Performance appraisal motivates an employee in achieving his/her tasks</td>
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<tr>
<td>Employee participation in decision increases employee productivity in Pharmacy and Poisons Board</td>
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</tbody>
</table>

8. What suggestions can you give to improve the Performance Appraisal process in Public Service Commission?

.................................................................................................................................................................
.................................................................................................................................................................
9. How would you rate Pharmacy and Poisons Board in terms of the following areas in relations to effective performance?

<table>
<thead>
<tr>
<th>Area</th>
<th>Very good</th>
<th>Good</th>
<th>Average</th>
<th>Poor</th>
<th>Very Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost/loss reduction</td>
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<tr>
<td>Employee retention</td>
<td></td>
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<tr>
<td>Efficiency in service provision</td>
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<tr>
<td>Increased revenue</td>
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</table>

SECTION C: TRAINING OF STAFF AND ORGANIZATION PERFORMANCE

10. How often do you undertake formal training as an employee of Pharmacy and Poisons Board?

Very often ( )   Often ( )   Sometimes ( )   Never ( )

11. Where does most of the training take place in your firm?

In-house seminars and workshops ( )   outside seminars and workshops ( )

12. Are you pursuing additional college or university education as part of your training?

Yes   No

13. How would you rate each of the following in terms of improving performance of the Pharmacy and Poisons Board department?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very important</th>
<th>Important</th>
<th>Fairly Important</th>
<th>Not Important</th>
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</thead>
<tbody>
<tr>
<td>Staff with wide experiences of challenging assignments</td>
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<tr>
<td>Quality and quantity of staff needed to run Pharmacy and Poisons Board</td>
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<tr>
<td>Management courses/Strategic leadership programmes for pharmacy personnel</td>
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<tr>
<td>Self driven techniques</td>
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</tbody>
</table>
Mentoring by seniors
Skills in record management

SECTION D: Changes in Structure and Reporting Channels

14. To what extent changes in structure and reporting channels affects performance of Pharmacy and Poisons Board.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changes in chains of command in the organization led to setting of better quality goals</td>
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<tr>
<td>Changes in chains of command in the organization led to Faster employee response and completion of work</td>
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<tr>
<td>Job redesign in the organization led to enhanced teamwork and better performances from staff</td>
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<tr>
<td>Changes in chains of command in the organization led to enhanced employee commitment and availability at work</td>
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<tr>
<td>Changes in span of control in the organization led to enhanced teamwork and better performances from staff</td>
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<tr>
<td>Changes in work teams in the organization led to enhanced employee commitment and availability at work</td>
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</tbody>
</table>
15. In your view, how else does changes in structure and reporting channels affect performance of Pharmacy and Poisons Board?

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SECTION E: INFORMATION TECHNOLOGY AND ORGANIZATION PERFORMANCE

This section is concerned with investigation of whether information technology affects performance of Pharmacy and Poisons Board.

7. Is your Pharmacy and Poisons Board firm computerized?
   Yes ☐ No ☐

8. The statements below are concerned with use of information technology on performance of Pharmacy and Poisons Board. Please tick the one that best describes your opinion. Use the following scale. 1-stri‌‍gely agree, 2- agree, 3- neutral, 4- disagree and 5- strongly disagree.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of transactional IT investment is significantly associated with effective performance of Pharmacy and Poisons Board.</td>
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<tr>
<td>When the technology used in Pharmacy and Poisons Board operations becomes common, the competitive advantage is lost.</td>
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<tr>
<td>Investment in new types of IT has enabled Pharmacy and Poisons Board to improve efficiency in and coordination of operations,</td>
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<tr>
<td>Pharmacy and Poisons Board has managed to reduce inventory levels by use of modern technology.</td>
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<tr>
<td>Use of information technology in the Pharmacy and Poisons Board has improved the dissemination of information to other departments.</td>
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</table>
SECTION F: CONTINUOUS IMPROVEMENT AND ORGANIZATION PERFORMANCE

Please rate the following regarding your organization

24. Does the organization have continual improvement policies?

YES

NO

The statements below are concerned with effect of continuous improvement on performance of Pharmacy and Poisons Board. Please tick the one that best describes your opinion. Use the following scale. 1-strongly agree, 2-agree, 3-neutral, 4-disagree and 5-strongly disagree.
<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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</thead>
<tbody>
<tr>
<td>Continuous Improvement initiatives that increase successes and reduce failures</td>
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<tr>
<td>In service industries and the public sector, the focus is on simplification and improved customer service through greater empowerment of individual employees and correspondingly less bureaucracy</td>
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<tr>
<td>Standardization of products and processes had successfully integrated CI in work teams</td>
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<tr>
<td>Continuous improvement is the major driving force behind any improvement effort</td>
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<tr>
<td>All organizations need both continuous and breakthrough improvement.</td>
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THANK YOU
### Appendix iii: Research Project Budget

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Price per unit</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport.</td>
<td>140</td>
<td>100</td>
<td>14000</td>
</tr>
<tr>
<td>Stationery</td>
<td>2000</td>
<td>2</td>
<td>4000</td>
</tr>
<tr>
<td>Printing / Photocopy</td>
<td>400</td>
<td>10</td>
<td>4000</td>
</tr>
<tr>
<td>Meals</td>
<td>20</td>
<td>100</td>
<td>2000</td>
</tr>
<tr>
<td>Miscellaneous</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>24000</strong></td>
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</tbody>
</table>