

**A SURVEY OF OPERATIONS IMPROVEMENT PRACTICES AMONG ISO 9001:2000  
CERTIFIED COMPANIES IN KENYA**

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# DECLARATION

This research project is my original work and has not been presented for a degree in any other University or Institution of Higher Learning.


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This research project has been submitted for examination with my approval as the MBA Student's Supervisor, in the Department of Management Science, Faculty of Commerce University of Nairobi.

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CIM	Computer Aided Manufacturing
COMESA	Common Market for Eastern and Southern Africa
COYA	Company Of the Year Awards
EOQ	Economic Order Quantity
GDP	Gross Domestic Product
ISO	International Standards Organization
IT	Intermediate Technology
JIT	Just In Time
KBS	Kenya Bureau of Standards
KP &LC	Kenya Power and Lighting Company
MBA	Master of Business Administration
MRP	Materials Resource Planning
NARC	National Rainbow Coalition
NGO	Non Governmental Organizations
PRSP	Poverty Reduction Strategy Paper
SAP	Structural Adjustment Programme
SCM	Supply Chain Management
TOC	Theory Of Constraints
TQM	Total Quality Management
VM	Virtual Management
FMS	Flexible Manufacturing Systems

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ATM	Automated Teller Machines
BPR	Business Process Reengineering
CEO	Chief Executive Officer

## ABSTRACT

In response to numerous competitive pressures, customer demands and ever –changing economic and regulatory conditions, many organizations are fundamentally rethinking the way they do business. No wonder then that even smaller organizations and NGOs nowadays strive to make strategic plans in anticipation of uncertain future challenges within and outside their organizations. Organizations are getting more concerned about their objectives, resources allocation, quality standards, and delivery methods; all these focusing on meeting the ever-changing customer requirements. In Kenya, the need to improve business operations processes cannot be overemphasized as major organizations register losses year after year, due to poor performance. Most of them have now started the reorganization process with a view to returning to profitability so as to spur the much-needed economic growth, which would result in wealth creation and employment generation. There can, therefore, be no better time than now, to look for ways of improving performance through innovative practices.

It is against these backgrounds that it was found necessary to survey the operations improvement practices used by organizations, with a view to documenting the existing approaches and how changes have been managed in these companies. The survey was conducted among 84 out of 128 ISO 9001:2000 certified organizations in Kenya, through data collection by means of questionnaires.

The survey findings show that many organizations (average of 71 %) were aware of most operations improvement techniques even before they obtained certification, although few of them put them into practice. After certification, the techniques were put in practice resulting in different levels of achievements based on organizations' objectives. The dominant reasons why these organizations adopted operations improvement techniques were to improve products quality / service delivery (36 %) and also to achieve operational efficiency by reducing time wastage and defects (20 %). The study also shows that, change in staff attitude with a response rate of 80 % has emerged to be the main obstacle during implementation of various improvement techniques. It is also evident from the study that, most organizations prefer incremental approaches for operations improvement, although a few embrace radical approaches. The study further shows that, other than periods of crisis, new operations improvement approaches can be introduced even during periods of success through research, to come up with innovative methods to stay ahead of competition. At the same time, a majority of the organizations associated quality and efficiency with achievement of financial indicators such as turnover, profitability and market share

In conclusion, the study shows that level of awareness of improvement techniques alone is not sufficient for improvement of operational performance. The techniques must be into practice in order to realize the desired results. It is also evident from the findings that, most of the organizations that were studied have a very strong inclination towards incremental approaches. In managing changes that come with new improvement methods, organizations should first and foremost deal with staff attitudes if tangible results are to be realized.

# CHAPTER 1: INTRODUCTION

## 1.1 Background

Over the last 10 years, Kenya's economy has continued to perform dismally, generally due to low levels of new investment resulting from unfriendly economic policies. Matters are not any better even after the NARC government came to power on a reform platform. According to Kenya's Poverty Reduction Strategy Paper (2000), Kenya's rate of economic growth has been declining steadily since the 70s and shows no signs of quick recovery. Based on this type of environment, it is deemed necessary to constantly improve operations within the organization for survival (Munyiri, 2000).

During the budget for the year 2004, the Minister for Finance reported that the economy grew by only 1.8 % of GDP against a target of 3 %; annual inflation rate grew from 7.8 to 9.8 % (PriceWaterHouse Coopers, 2004). These states of affairs are a reflection of poor performance by both commercial and business organizations in the private and public sectors. Year in, year out, companies and quasi-government organizations continue to register financial losses in performance.

Due to increased globalization and development in IT, products and services have become more valuable to the extent where they can easily move from their source to a point where they are not available. This easy mobility of goods and services has tremendously increased competition due to their variety in the market place. In the East Africa region, the recent efforts towards trade liberalization and free movement of people across the borders will mean that business operatives will be more sensitive to customers' tastes and preferences. During the 6<sup>th</sup> Heads of States of East Africa Community Summit (Daily Nation –Nov, 2004), a timetable was set to facilitate the following among others, by December 2007; Formation of a common customs union, which is now in place but not yet fully operational; Free movement across borders; Opening of regional airspace; and Setting up a common market

With access to other markets within the COMESA region, it is expected that, only highly competitive goods and services will survive the ensuing environmental changes. There can therefore be no better time than now, to look for ways of improving performance through innovative practices.

The need for performance improvement in today's competitive environment cannot be overemphasized. Other than providing growth prospects at individual levels for employees, shareholders and stakeholders of successful organizations, performance improvement in firms contributes to the overall growth in the economy and help in poverty alleviation by increasing employment opportunities.



The desire to improve the effectiveness of operations has over the years given rise to a series of philosophies, tools and techniques. Many of them appeared each time to offer the required 'solutions' to the continuing problems of poor performance in many business entities. Many managers, therefore, continued to search for one perfect approach that would once and for all gain competitive advantage over other companies. But on the perfect solution theory, Drucker (1997) had this to say; "For more than a century, - from J P Morgan and John D Rockefeller in the United States, Georg Siemens in Germany, Henri Fayol in France, through Alfred Sloan at General Motors, and up to the present infatuation with teams - we have been searching for one right organization for our companies; there can no longer be any such thing. There will only be organizations as different from one another as a petroleum refinery, a cathedral, and a suburban bungalow are from one another, even though all three are buildings. Every organization in the developed countries will have to be designed for a specific task, time, and place (or culture)."

In the above statement, Drucker was trying to emphasize that, different approaches have their value and none can be said to be a panacea since there will always be more work on creativity and innovation. It is, therefore, practical to state that all approaches, tools and techniques are valid, and that the development of one should not invalidate the others, but merely expands their value.

This survey for operations improvement practices was conducted among ISO 9000 certified firms in Kenya, which focus on quality management and performance practices, and are identified by the '2000' prefix in their designation. ISO 9000 standards are a collection of formal international standards, technical specifications, technical reports, handbooks and web based documents on Quality Management and Quality Assurance (<http://www.iso.org>); these ISO 9000 family of standards were later consolidated into a revised document called ISO 9001:2000. The main reason for the choice of the firms is that, they are already fully aware of the benefits of competitive advantage through quality processes and outputs (Miyumo, 2003). No wonder then that Bidco Company won the Company Of the Year Awards (COYA) in quality management practices for the year 2004, and attributed this success to their ISO 9001: 2000 certification status (Daily Nation, July 2004).

First published in 1987 and revised in 1994, the ISO 9000 family of standards represents an international consensus on good management practices with the aim of ensuring that companies deliver products and services that meet clients' quality requirements. These good practices have been distilled into a set of standardized requirements for a quality management system, regardless of what the company does, its size or whether it is in the private or public sector. The standards are market driven and developed by consensus among experts drawn from the industrial, technical, or business sectors, which have expressed the need for a particular standard.

While ISO 9000 family of standards does not specify the quality processes to be adopted, it requires that appropriate quality activities be defined, that processes be documented and that proof be supplied that the company consistently adheres to the laid down procedures (Kioko, 2002). The main strength of the ISO 9000 standards and the reason why they have been adopted world-wide is that, they assure customers who do business with certified companies that fundamental quality systems are in place. For many international companies, ISO 9001:2000 certification is seen as a key to doing business in global markets and improving productivity, hence competitiveness (Miyumo, 2003).

In studying the operations improvement practices of ISO 9001:2000 certified companies, the study recognizes the relationship between ISO 9001:2000 certification and Total Quality Management (TQM), which is an approach that facilitates continuous / incremental quality improvement through integrated efforts. The study, therefore, was from companies that already had an operations system benchmark in the form of ISO 9001:2000 certification.

Introduction of new operational business approaches and techniques bring with them challenges in the form of changes that should be properly managed if the desired goals are to be achieved. In his analogy with operational changes in the business world, a Renaissance Political Strategist, Niccolo' Machievelli in 2002 said; "There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of doing things, The world is an unforgiving place, and if you want to get things accomplished, you must approach the challenges with dry-eyed realism"

Change is, therefore, a complex process, and an ever-present feature in organizational life whose pace has increased significantly in recent years (Burnes, 1998). In recent surveys, managers identified their ability or inability to manage change as the number one obstacle to the increased competitiveness of their organizations. Therefore, understanding the theory and practice of change management should not be treated as an option, but an essential requisite for survival (Burnes, 1998). Getting a company to adopt new operational practices requires change management tactics that are capable of successfully and effectively transforming organizations to pursue new directions, goals, or other structures. This requires cultural change in the entire organization. To quote Jim Lodge, 1995, "*Most Corporations are like giant jellies. You can force them briefly into a new shape. But unless you can fundamentally reform the culture that holds them together, they will swiftly wobble back into their old form*"

Operations improvement can be achieved through incremental or radical (quantum) approaches respectively using either the total quality management philosophy or the reengineering of the processes. The techniques employed include demonstration projects, benchmarking initiatives, business process improvement and the bottom-up methods (Hayes et.al, 1988). The techniques

are usually employed in combination, and in particular circumstances, one may simply be a subset of another. In general however, an initiative is characterized primarily by one of the above mentioned approaches, with others as subsidiaries.

## **1.2 Statement of the Problem**

In response to competitive pressures, customer demands and ever –changing economic and regulatory conditions, many organizations are fundamentally rethinking the way they do business. No wonder then that even smaller organizations and NGOs nowadays strive to make strategic plans in anticipation of uncertain future challenges both from within and outside their organizations. Organizations are getting more and more concerned about their objectives, resources allocation, quality standards, and delivery methods; all these focusing on meeting the ever-changing customer requirements.

In Kenya, the need to improve business operations processes cannot be overemphasized as major organizations and multi-national companies register losses year after year due to poor performance (PWC, 2004). Most of them have now started the reorganization process with a view to returning to profitability so as to spur the much-needed economic growth, which would result in wealth creation and employment generation. As already indicated above, the 2004 economic survey revealed that the Gross Domestic Product in Kenya grew by only 1.8 %, while the government expenditure increased by 13.6%. This state of affairs is a reflection of the burden imposed by non performing state corporations to the exchequer, forcing parastatal organizations such as TELKOM Kenya and Kenya Power & Lighting Company, which have enjoyed monopoly status to rethink their positions and change their ways of doing business. Kenya Railways survival depends squarely on how fast it moves to change its service delivery operations. The list is endless.

The private sector has not been left behind in this fight for survival and performance to gain the required competitive edge. Coca Cola company and Kenya Breweries Ltd have time and again changed their products distribution and packaging methods so as to retain their market share which has constantly been under threat from up-coming competitors (Mwosa, 2004). The banking sector has had to invest heavily on IT and introduce innovative product packages to maintain and increase their customer base; one such bank is the Standard Chartered Bank, the first bank to introduce ATMs, which has computerized most of its operations to improve on service delivery (Obiero, 2002).

The above examples are meant to show that organizations that sit on their laurels and hope to survive without taking deliberate moves to improve on their performance will soon find themselves out of business and increase unemployment rates and poverty levels to unacceptable proportions.

It is against these backgrounds that it was found necessary to survey the operations improvement practices used by organizations, with a view to documenting the existing approaches and how changes have been managed in these companies. Despite the evolvement of many improvement techniques such as Value Engineering, Just-In Time (JIT), Total Quality Management (TQM), Business Process Reengineering (BPR), Theory Of Constraints (TOC), and Supply Chain Management (SCM) among others, it appears that the last operations improvement philosophy is yet to be seen, if the rapid development in Information Technology (IT) is anything to go by. With these trends, it is anticipated that more efficient business practices will evolve that result in higher economic growth for the benefit of the whole citizenry.

Other local researchers have studied operations improvement approaches but most of them have targeted specific groups of populations that do not cut across the entire business sector. Some of the studies carried out locally are listed below but a summary of their findings is covered in Section 2- Literature Review. The studies were: change management practices by Kenyan Companies (Gekonge,1999); business process reengineering (BPR) in the pharmaceutical industry (Munyiri, 2000); operations strategies for competitiveness in the manufacturing firms (Nyamwange, 2001); process improvement consulting in the manufacturing sector in Kenya (Ngure, 2001); change management practices in total quality management implementation (Miyumo, 2003); and improvement methods applied in operations (Ombura, 2003)

The private and public sectors in Kenya are composed of companies that can be characterized to belong to either the manufacturing or services industry. Due to this mixed classification, they equally apply mixed operations improvement practices in their pursuit to improve on performance and remain competitive in the market place. These improvement practices produce different performance outcomes specific to each sector, be they products or services.

### **1.3 Objectives of the Study**

The objectives of the study were to:

1. To survey the pre- and post certification operations improvement approaches used by ISO 9001: 2000 certified companies in Kenya's business environment;
2. To establish reasons for pursuit of specific operations improvement approaches and ranking by the ISO 9001: 2000 certified companies; and
3. To document the challenges faced by ISO 9001: 2000 certified firms during implementation of operations improvement techniques and their future plans necessary for enhanced competitive edge.

## **1.4 Importance of the Study**

The study has provided an opportunity to compare operations improvement techniques across a broad spectrum of organizations both in the manufacturing and services sector. It shows a diversity of techniques from which it is possible to determine a practical menu of improvement tools suitable for different industry segments.

The importance of the study is therefore:

### **To the Industry**

To document the approaches of improving operational, hence business performance across the manufacturing and services sectors for sustained growth

### **To the Country at large**

To document the operations improvement practices whose use would result in enhanced economic growth, employment generation and poverty reduction.

### **To the Academics**

To use experiences gained from existing operations improvement techniques for research on new and innovative approaches for improved performance.

## CHAPTER 2: LITERATURE REVIEW

### 2.1 Introduction

#### 2.1.1. General

Having experienced with a number of management fads, many Western managers realized that corporate success was inherently transitory, if not under-pinned by sound operational abilities at the operating unit level. The need to improve effectiveness of operations has, over time, given rise to a series of philosophies, tools and techniques such as Value Engineering, Quality Circles, Lean Manufacturing, Total Quality Management, Business Process Reengineering, and lately, Supply Chain Management, among others (Ngure, 2001). Ngure (2001) further says that, the steady stream and changing nature of these methods and techniques vividly illustrate the evolution of the role of operations in organizations, and provide a window of insight into the general practical problems of building new operational capabilities.

In general terms, various approaches of creating sound operational capabilities may be divided into three distinct phases or philosophies, which overlap, yet dominate their times; these are discussed below;

#### 2.1.2 Structural Solutions to Infrastructure Problems

In the 1970s, firms frequently attacked the problem of operations performance by addressing structural aspects of their operations strategy (Upton, 1995). For example, a firm's facilities and sourcing strategies were often adjusted, chopped, or changed as regimes of new managers stepped in to 'fix' specific operations problems. Sudden and dramatic restructuring led to organizational units being selected for survival on the basis of their cost, (and occasionally quality) performance, and under-performing units were closed or sold off. Although such methods did rid operating networks of some poorly performing units which were unlikely to get better over time, they unfortunately also threw out many potentially good units (Hayes, 1980).

The above illustration shows that reliance solely on structural methods for improving operating performance fails for a number of reasons, not least of which is a failure to incorporate the fact that operations management is a dynamic activity. Organizational units are often unable to improve or perform better because of the nature of specific tasks assigned to them, as well as the measures used to evaluate their performance. It is important to note here, though, that units may appear unprofitable according to the traditional cost-accounting methods, but they may be justified in providing support to the product range as a whole.

### 2.1.3 Systems Solutions

In the early 1980s, technology apparently rode to the rescue on a silicon chip-studded robot. Computers controlled not only individual processes, but also the coordination of different processes in what appeared a likely prospect for salvation. The un-manned factory - implicitly seeing people as a problem rather than a resource, became a goal in itself (Williams, 1988).

Thousands of engineers throughout the world worked to develop (at great expense) robots able to pick individual objects from a cluttered floor, or wrote software that would supposedly slice through the complexity of managing a job-shop by controlling everything that happened within it (Upton, 1995). Automated systems, which wrested control away from mistake-prone operators while at the same time improving productivity and quality, were touted to be the new panacea (Jaikumar, 1986).

In this systems era, a flood of three letter acronyms such as MRP, MRP II, FMS, and CIM among others, beset the manufacturing industry, each promising competitive leaps in performance. Problems began to arise with some of these systems, such as FMS, as new products were required. While the new systems provided great advantages in tackling the informational complexities of manufacturing systems that made a broad range of products, and often improved the trade-off between cost and variety, they failed to embody some critical elements of manufacturing competitiveness.

Despite problems associated with automated systems, computer integration has become a necessary, if not sufficient, condition for success in many operations (Rogers et.al, 1992). Long-term success, however, demands the creation of ever-more powerful systems- ones that are difficult for competitors to replicate and are steadily being improved. While technology may yet prove us wrong, at present, such relentless improvement is strongly reliant on the involvement of human beings and their ability to learn new tasks and develops new skills. One technique from the 'systems' school that merits further attention, since it straddles both the systems approach and continuous improvement philosophies, is the Just-In- Time (JIT) system. It put much of the control back in the hands of operators, who often rose to the challenge and created the constantly improving organization for which many firms had been searching.

### 2.1.4 Improvement by Philosophy

While many firms tried to replicate the successes of JIT approaches using Kanbans and Cellular Manufacturing, most were disappointed with the results. The failure of the pure systems approach hailed a new wave of improvement philosophies; *Empowerment*, *Agility*, *Total Quality*, *World Class*, and *Reengineering* each claimed to radically alter the culture of operations, as well as provide a different approach for building new infrastructure abilities (Hammer and Champy, 1993). Given an organizational philosophy and structure equipped with appropriate improvement

techniques, the opportunity for improving operations is infinite. Organizations driven by improvement philosophies have the following characteristics; customer driven, employee involved, continuous improvement oriented, process focused, and internationally sensitive

A moment of reflection of these characteristics reveals a substantial shift from a *primary concern for output* to one that is directed toward; recipient of goods and services, the process that generated them, and a sustained concern for improving the level of *satisfaction and value* provided by the goods and services.

## **2.2 Approaches to Operations Improvement**

### **2.2.1 General**

In general terms, there are two basic approaches; incremental (evolutionary) and quantum (revolutionary). This section discusses the approaches while sections 2.3 to 2.6 review some of the specific philosophies that have dominated evolution of operations improvement techniques

Incremental approaches (Hayes, 1986) include process improvement (i.e. minor adjustments) and automation involving replacement of labour by machines through large capital outlays. It also covers process simplification, which may include job redesign and changes in organization structure. These changes are gradual and implemented over a given time interval. They are carried out within functions using bottom-up approach and are narrow in scope. Business Process improvement and Total Quality Management are examples of incremental approaches. Quantum approaches (Hayes, 1986), also referred to as transformational approaches aim at new levels of improvement and are radical in nature, based on clean slate approach and carried out at a specific time (one- off). They are carried out across functions using the top-down approach and are broad in scope. Typical examples of the quantum approaches include Business Process Reengineering (re-conceptualizing the business process in another way) and Business Reengineering (changing the way a business is done in totality, looking outside the process).

### **2.2.2. Reconfiguration of Operations Strategy Structure**

A common 'top-down' approach to boosting the performance of an operation is a wholesale restructuring of the operating strategy through adoption of a structural change. The key challenge here is to provide a platform that will permit and encourage continued improvement once the structural change is in place (Feather, 1998). The adage often used when setting up a new structure is: *Do it first, do it fast, and do it right*, due to the uncertainty that may make people to under-perform (Hayes, 1988).



### **2.2.3. Demonstration Projects**

Demonstration projects provide an opportunity for a company to make a bold leap in its operating capabilities. Such projects should ideally focus on one part of the company's total operation, and carried out using the very best in terms of human resources, ideas and technologies, to show what can be done and how, in a radically different way than the operations existing in the organization (Upton, 1995).

The acid test for such projects is that their success is its ability to cease to be simply a demonstration project, but for the new approach to spread to the rest of the organization

### **2.2.4. Continuous Benchmarking Initiatives**

The most valuable form of benchmarking for operations improvement is operational benchmarking, which compares one's own operations to another using clearly measurable characteristics such as lead times, variable costs, defects etc (Amolo, 2002). Continual benchmarking of this sort serves to constantly expose an organization to comparison with the leader in various operations practices, and illuminates the mechanisms through which it can improve its performance on measures over which it has some control (Upton et.al, 1994).

### **2.2.5. Functional Improvement Initiatives**

Occasionally, the shortcomings in a firm's operational performance on its principal competitive thrust lie primarily with one function. In such cases, it makes sense to concentrate on that area and provide it with the support it needs from the rest of the organization. Improvements in a particular function can often provide an instructive example of how radical a change is possible, hence providing motivation to other groups. It is important, however, that a serious competitive issue be identified with such functional groups.

### **2.2.6. Business Process Improvement**

Processes that dominate an operation should provide an excellent starting point for an improvement path. One process that is key for firms compelled to provide quick response, for example, is the order fulfillment process, which cuts across the operation from order entry into the sales department, to dispatch and delivery from finished goods (Ombura, 2003).

The focus on Process Improvement rather than Functional Improvement ensures that objectives of the entire organization are optimized instead of just one department.

### **2.2.7. Bottom – up Improvement**

Building improvement from the ground, up, is the implicit objective behind the empowerment craze of the early 1990s. Through the bottom-up approach, people in the operation are given more

autonomy to seek out opportunities, either in teams or individually, to improve the operation's effectiveness (Upton, 1991). Responsibility for improvement, therefore, lies squarely with those who work on the processes. Some of the key features of successful bottom-up improvement initiatives are described below:

**Choice of Direction** – this is a clear, credible plan of campaign, which is critical for a consistent message to be communicated to people. Value terms such as empowerment and reengineering mean little to those expected to make concrete changes

**The Trojan Horse** – this refers to a scheme that gets improvements rolling in the plant, and triggers a range of other more important improvements. For example, TQM and Lean Production are good starting points for motivating a work force because they provide structure (how) and focus (what) to an improvement path.

**Training** – training builds confidence (it's hard to try new things if you are scared of exposing your own ignorance). It also it establishes credibility and a communication channel with people.

**Skills of Middle Managers** – since the upper management is usually exposed to the competitive imperatives, they easily understand the necessity for change. There should, therefore, be more focus on middle management since they are the ones faced with loss of power base and also their functional position. These managers are often important sources of knowledge whose skills can be lost if they are not included in the change process.

### **2.3 Operational Change Management**

The reality that organizations have to confront is that the old ways of doing business operations simply cannot work forever, hence a necessity for change. Suddenly, the world is different place to do business in, where we can no longer count on a predictable business cycle (Gekonge, 1999). Change is an ever-present feature of organizational life, whose pace has increased significantly, in recent years.

Implementing organizational and operational changes effectively is one of the managerial challenges facing all companies today (Gekonge, 1999). The situation is the same in both the private and public sector; in manufacturing, banking, healthcare, education, etc. The rapidity of technological change, which promotes innovation, has accelerated the need for change with the passage of time in order to improve performance and remain competitive (Bwibo, 2000).

In his study of change management practices in Kenya, Gekonge (1999) found out that, resistance to change was the main obstacle to change management (59 %). This finding was consistent with those of Ansoff (1994) and Strebel (1996), who found out that employees and managers resist

change, demonstrated by causing delays to the process, in an attempt to protect their positions and their unwillingness to move to the unknown changed future. Gekonge (1999) further found out that, successful change could only emanate from strong and effective leadership from top management, and by involving organizational members at the operational level in the change process.

## **2.4 Just – In – Time (JIT)**

The JIT philosophy was discovered by US manufacturers in the mid 1970s. They had previously used the EOQ and developed MRP and MRP II to minimize inventories and lead times. There was a need for a system that attacked waste throughout the manufacturing system. Kiichiro Toyoda is attributed with originating the JIT philosophy as he prepared to manufacture automobiles at his new Koromo plant in 1938; he hang a sign that read “ *JUST IN TIME*”, implying that no car component should be produced before it was needed, and that components should therefore be made, just in time. By the mid 1970s, he developed and implemented the JIT manufacturing system.

JIT is defined as the philosophy of eliminating waste in the total manufacturing process (Hay 1988, 1). According to Fogarty et. al (1991), the basic tenets of the JIT philosophy are: All waste should be eliminated; JIT is a never ending journey; Inventory is waste; Customers define quality; Manufacturing flexibility is essential; Team effort is required; and Employees are sources of improvements

It should be noted that many of the JIT tenets remain as components of TQM and even SCM, whose focus has been on gaining competitive advantage by striving to be low cost provider of products and services (Inman et.al (1988).

## **2.5 Total Quality Management (TQM)**

Dr Deming’s 1950-51 lectures on statistical quality control in Japan mark the beginning of what is now called TQM philosophy (Nonaka, 1995). The focus in Japan expanded to include quality. The works of Deming, Juran, and Crosby in the early 1980s became popular in the United States, and TQM became the battle cry for competitive advantage (Deming, 1986). Primarily, TQM required a focus on the customers’ definition of quality, continuous improvement and the use of statistical quality control techniques (Juran, 1995).

Total Quality Management (TQM) approach facilitates in achieving continuous / incremental quality improvement through integrated efforts. In ISO 1994, TQM is defined as “management approach of an organization, centred on quality, based on the participation of all its members and

aiming at long term success through customer satisfaction, and benefits to all members of the organization and to society”.

During the latter part of the 20<sup>th</sup> century, Total Quality Management (TQM) principles began to dominate the manufacturing field. Later, TQM principles spread across various other fields such as engineering, agriculture, and hospital management among others (Godiwalla et al 1997). During the 1970s, various debating platforms on TQM emerged in the form of conferences, seminars, associations and journals. All contributions projected the ultimate benefits of TQM and appraised the methods of implementing TQM techniques. In other words, TQM was viewed as a magical philosophy that would provide miraculous solutions for attaining competence. However, from the 1990s, there has been resentment over the outcome of TQM. For example, an anonymous author (1992a) maintains that TQM is a partial approach. Murugesu et al, (1997) claimed that TQM programmes retard productivity. Sheehy (1997) warns that TQM cannot be a successful philosophy in the present bureaucratic management model. Omufira (2001) in her study on TQM implementation in Kenyan construction industry, concluded that poor implementation is a major drawback to TQM.

## 2.6 Business Process Reengineering (BPR)

According to Davenport & Short (1990), *business process* is “a set of radically related tasks performed to achieve a defined business outcome”. A *process* is “a structured , measured set of activities designed to produce a specified output for a particular customer or market. It implies a strong emphasis on how work is done within an organization. *Reengineering* is the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance such as cost, quality, service and speed (Hammer M & Champy J, 1993). Business Process Reengineering (BPR) advocates that organizations go back to the basics and re-examine their roots; it does not believe in small improvements, but rather it aims at total reinvention, according to Hammer and Champy. Davenport and Stoddard (1994) later showed that BPR should not entirely be carried out in isolation but can be combined with other incremental approaches so that new business processes can benefit from existing processes, discounting the traditional “clean slate” idea of BPR. Several researches on BPR have been carried out in European as well as American countries where many companies have also tried BPR projects.

In Kenya, research on BPR and its concepts have not been tried in the same scale as in the developed world. While BPR in the developed world has been due to crises and also for strategic and innovative reasons, the practice in Kenya has mainly been crisis driven as was the case with Kenya Airways in the middle of the 1990s (Davies, June / July 1993). Other companies such as Kenya Breweries Ltd and Coca-Cola, targeted specific business processes such as storage and

distribution of their products. It should be noted that research on BPR has been equally restricted and that is why this study is targeting the entire business environment.

Munyiri (2000) conducted a survey to study experiences in the pharmaceutical industry and concluded that the process changes involved were for small processes whose initiatives could not be described as truly radical. However, she found the drivers of change to be generally similar to those indicated by Jukka et. al (1995) as follows: internal inefficiency of company operations resulting in high costs and low quality; changes in consumer demands due to more awareness; changes in the legal environments; and high degree of competition among players

According to Hammer M and Hammer & Champy (1990 and 1993), there are three important BPR principles; radical change, the clean slate approach, and top-down participation. They believed that, the traditional BPR approach focused on large dramatic improvements of organizational systems, and that radical change is preferred over incremental improvements, which lock organizations into the old processes. Recent research by Jarvenpaa and Stoddard (1998) found out that, incremental implementation is possible as long as the design effort is radical; this led Dennis et al (2003) to conclude that, radical and incremental techniques can be used concurrently.

Another important principle is the clean slate approach, which assumes to ignore the current situation (Hammer & Champy, 1993). Looking at the current situation would only make it difficult, or even impossible to move away from the old organizational processes. This principle argues that creativity would be hindered by paying too much attention to the current situation (Pourdehnad J & Robinson P, 2001). Opponents of the clean slate approach however argue that process modeling creates a shared understanding of the current situation, enables to identify and keep best parts, and creates a fact-based baseline against which to compare the new processes (Meel J W & Sol H G, 1996). Recent research by Carr D K et al, Dennis A R et al, Grover V et al, and Teng JT et al, (1995, 2003, 2000 and 1998) suggests that, detailed analysis of current processes contributes to success of BPR projects.

The final key BPR principle concerns top-down participation. Traditionally, participation in BPR projects was exclusively for top managers (Hammer & Champy, 1993). According to these traditional approaches, middle managers are to be avoided because they lack the vision and authority to implement BPR, but a few outsiders are to be invited to bring objectivity and a different viewpoint. However, there is increasing evidence that it is important to include knowledge and build support from the bottom as well, by inviting middle managers [Carr D K et al, Davenport T H, Dennis A R et al, (1995, 1994 & 2003)]. Carr D K (1995) argues that top managers (catalysts) are often isolated from daily practice and therefore do not understand the business and real issues in the same way as the middle managers (core players) do. More recent research by Pourdehnad J and Robinson J (2001) identified a team comprising a consulting group

(outsiders), a steering team (top managers), a core design team (middle managers) and a stakeholders group (clients & suppliers) as being required to carry out BPR projects successfully.

## **2.7 Supply Chain Management (SCM)**

Just- In – Time (JIT), Total Quality Management (TQM) and others before them focused mainly on the manufacturing sector during their times. SCM on the other hand considered possible avenues outside the manufacturing organization. The Supply Chain Management philosophy appears to have its origins in the organizational extension theory described by Mallen (1963). Mallen advocated extending the organization to include all members of the distribution channel. The eighth edition of the APICS dictionary defines the supply chain as 'the processes from the initial raw materials to the ultimate consumption of the finished product linking across supplier-user companies'

Literature on SCM began appearing in the late 1980s when the focus began shifting from inside the plant to relationships with suppliers and then to closer relationships with customers (Tyndall, 1988; Stevens, 1990). Successful managers removed barriers to direct communication with customers, thereby improving demand estimates to the point where individual products could be custom-made for individual customers. Developments in IT have since allowed seamless electronic data exchange between business partners along the supply chain from source to the end-user. Improved relationship with vendors should result in reduced costs, while that with customers should improve sales. SCM therefore encompasses the cost reduction and revenue enhancement objectives of its predecessors.

## **2.8 What Next – Virtual Management?**

During the 1980s, many US companies announced that their manufacturing strategy was to become world-class, as good, along various measures, as the best companies in their sector. In pursuing this goal, they typically adopted one or more of the performance improvement programs such as JIT, TQM, Lean Manufacturing, BPR, SCM, and Benchmarking among others. Each of the programs focussed the organization on a particular variable or set of variables that would lead to competitive advantage. These approaches have served, and still continue to serve useful purpose despite development of new ones, which do not invalidate them, but merely expand their value. The most logical question to ask is; what next with this evolution process, in the face of continued developments in information technology?

According to Inman et.al (1993), the momentum appears to be in the direction of including additional components as part of the extended organization, while at the same time making use of the good values obtained from the earlier philosophies. SCM results in virtual vertical integration

where suppliers, wholesalers and retailers operate as one organization in the eyes of the end-user. The future likely also holds virtual horizontal integration, to be achieved through a concept of Virtual Management (VM) to include several layers of support function providers. The information technology will make it possible for the virtual organization to be agile and flexible, and appear as a single organization to the end-user of manufactured product or service. Successful VM will not be possible without the underpinnings of preceding philosophies.

## **2.9 Operations Improvement – Performance Measurement Indicators**

### **2.9.1. General**

Performance Measurement can be best understood through considering the definitions of the words "performance" and "measurement" according to the Baldrige Criteria described below:

The first definition of performance refers to output results from processes, products and services that permit evaluation and comparison relative to goals, standards, past results, and other organisations. Performance might be expressed in non-financial and financial terms. The second refers to numerical information that quantifies input, output, and performance dimensions of processes, products, services, and the overall organization (outcomes). Performance measures might be simple (derived from one measurement) or composite.

The challenge for organizations today is how to match and align performance measures with business strategy, structures and corporate culture, the type and number of measures to use, the balance between the merits and costs of introducing these measures, and how to deploy the measures so that the results are used and acted upon (Ferdows and De Meyer, 1990). To address this challenge, organizations are advised to devise a performance measurement system that provides a set of rules or guidelines for selecting and deploying performance measures.

### **2.9.2 Traditional Performance measures**

Performance measures have traditionally been primarily based on management accounting systems. This has resulted in most measures focusing on financial data such as return on investment, return on sales, sales per employee, productivity, and profit e.t.c. Of these measures, productivity has been considered the primary indicator of performance. However, to measure performance from operations point of view, the focus should be on the emerging performance measures – non traditional measures

### **2.9.3 Emerging Performance measures**

The emerging characteristics of performance measures are those related to manufacturing strategy, that are primarily operational so that they can provide managers, supervisors and operators with information for daily decision making. These measures should be easily

understood and foster improvement instead of just being monitored. Such measures should also change as is required by a dynamic market place. Typical differences between traditional and non-traditional performance measures are: -

Traditional performance measures are generally: Based on outdated traditional accounting system; Mainly financial measures; Intended for middle and high managers; Lagging metrics (Weekly or Monthly); Difficult, confusing and misleading; Lead to employees frustration; Neglected at the shop-floor; Do not vary between locations; Do not change over time; Not applicable for JIT, TQM, CIM, FMS, BPR, OPT, etc; and Hinders continuous improvement.

Non-traditional Performance measures on the other hand are: Based on company strategy; Mainly non-financial measures; Intended for all employees; On-time metrics (hourly, or daily); Simple, accurate and easy to use; Lead to employees satisfaction; Frequently used at the shop-floor; Have no fixed format (depends on needs); Change over time as needs change; Intended to improve performance; and important for achieving continuous Improvement

Time is one of the strategic performance measures that current business and performance trends show as the new strategic metric that firms should strive to measure and improve in order to be able to compete in the World Market. The importance of time can be realized from the following argument; measuring, controlling and compressing time will increase quality, reduce costs, improve responsiveness to customer orders, enhance delivery, increase productivity, and increase both market share and profits.

Bockerstette and shell illustrated how controlling cycle time will lead to overall business success. They argued that reducing cycling time reduces costs and improves customer satisfaction, which in turn increases revenue. Krupka, in addition argued that time is a more important metric than cost and quality since it can be used to drive improvements in both of them. It is also important to note that reducing time results in decreased costs by eliminating the activities that add no value. Quality also increases since by eliminating non-value added activities will decrease the chance of error introduction. Time – based performance measurement systems have been developed to help companies' control and improve their operations. They use time-based metrics, which could be used as diagnostic tools throughout the organization. These time-based metrics can be used in four different areas as follows: Developing New Products- covers time from idea to market, rate of new product introduction, and percentage of first competitor to market; Decision Making - includes decision cycle time, and time lost waiting for decisions; Processing and Production- includes value-added as percentage of total elapsed time, inventory turnover, and cycle time; Customer Service - includes response time, quoted lead-time, percentage deliveries of time, and time from customer's recognition of need to delivery.



## 2.10 ISO 9001:2000 Certification

The ISO 9000 standards<sup>1</sup> give organizations an opportunity to increase value to their activities and to improve their performance continually, by focusing on their major processes. The standards place great emphasis on making quality continual improvement. As a result, they direct users to the achievement of business results, including satisfaction of customers and other interested parties.

According to the guidelines for selection and adoption of ISO 9000 family of standards (<http://www.iso.org>), the management of an organization should be able to view the adoption of the quality management system standards as a profitable business investment, not just as a required certification issue. Among the perceived benefits of using the standards are: the connection of quality management systems to organizational processes, natural progression towards improved organizational performance, adoption of process approach, measurement of the quality management system, processes and product, and requirement for the establishment of measurable objectives at relevant functions and levels.

International standards have been used, as a tool, for Kenyan firms to respond to the changes in the business environment (Kioko, 2002). The ISO 9001:2000 quality management standards, which is one of the most popular standards, were adopted through Kenya Bureau of Standards in keeping with the pace in business growth (Rotich, 1996). ISO 9001:2000 certification is carried out by the Quality System Accreditation committee, whose objective is to promote quality system certification activities countrywide by ensuring orderliness and accountability in the provision of requisite services. The committee is responsible for maintaining a national register of all certified firms, qualified assessors and registrar bodies. Currently, the bodies listed to undertake certification activities are; Kenya Bureau of Standards, SGS Kenya Ltd, and until recently, Bureau Veritas Kenya and Lloyds Register Quality Assurance.

At the end of February 2005, about 128 firms were on record as having complied with ISO 9001:2000 certification requirements (Kenya Engineer, 2003). Many of these companies developed strong interest in ISO for various reasons including; a desire to improve quality of services to the customer and performance to the company and stakeholders (Daily Nation, Dec 2001).

Although the standards are voluntary, interest in them appears to be driven by market forces and firms are waking up to the fact that survival in a competitive market is not a guarantee and cannot be taken for granted. Purchasers of services and products in Kenya today look beyond the end

products and instead focus more on the systems put in place to ensure consistency in meeting their expectations; the standards provide a model for achieving customers' requirements (Kioko, 2002).

## 2.11 Some Past Studies on Operations Improvement in Kenya

Some studies have been carried out in Kenya, generally and specifically on operations improvement techniques and strategies, but none of them has documented the improvement practices in the entire business environment. In particular, few of the studies have focused on organizations that are already known to embrace some form of business improvement initiatives in one way or another. The past studies include, but are not limited to works by the following:

Gekonge (1999) – A survey of strategic change management practices by Kenyan Companies – A case of companies listed at the Nairobi Stock Exchange. The study found out that, most firms (78 %) in Kenya use the procesual and incremental change models. In all these change efforts, a key influential feature was found to be top leadership support. Introducing change, either strategic or operational was found to be a major challenge with up to 60 % resistance.

Munyiri (2000) – Survey of the use of business process reengineering (BPR) in the pharmaceutical industry. The survey, which was limited to the pharmaceutical industry, found out that, most companies focussed on narrowly defined process changes, which are easy to manage. No radical projects were found within the confined population. 44 % of the firms studied were found not to have heard about BPR. The critical factors for success of BPR projects were found to be top management support and revolutionary cultural change from old ways of doing business.

Nyamwange (2001) – Operations strategies applied for the competitiveness of Kenyan large manufacturing firms. The study found out that, Kenyan firms do not entirely compete on any one of the operations strategies on cost, quality, reliability or flexibility. In stead, some form of trade-offs has to be made. Nyamwange therefore suggested that there is a need to detail the specific practices on each of the operations strategies and to find out which are the order winners and order qualifiers.

Ngure (2001) - A survey of the perception of process improvement consulting among the manufacturing sector in Kenya. This study found out that, there are negative perceptions against process improvement consulting, and concluded that increased competition can be a reason and is

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<sup>1</sup> Following extensive consultation with users and National Standards Bodies, it was agreed that the ISO 9000 series for quality management, i.e. ISO 9001, ISO 9002 and ISO 9003 be consolidated into a single revised document called ISO 9001:2000; hence the use in subsequent references.

necessary for a positive change in attitude. It recommended the use of bottom-up approach in dealing with process improvement initiatives. The main draw back of this study as pointed out by Ngure (2001) was that it was based on imaginary process improvement consultant. The research recommended further study with practicing process improvement consultants

Miyumo (2003) – Change management practices in total quality management implementation; A survey of ISO 9000 certified firms in Kenya. Miyumo found out that, although ISO 9000 certified firms are already aware of the benefits of change through quality improvement approach, the cultural change in attitude remains the biggest threat to change management.

Ombura (2003) – Improvement methods applied in operations: A survey of the practices on Kenyan firms listed in the Nairobi Stock Exchange. This study showed that, most firms listed in the Nairobi Stock Exchange were quite familiar with six operational improvement methods, i.e. quality-based, time-based, activity-based, employee-based, technology-based, and process-based methods. However, most firms were found to use continuous benchmarking and business process improvement. The study recommended further research on how the individual improvement methods are used.

This study, therefore, adds to the list of survey of firms that cut across both the manufacturing as well as the services sector. Based on the targeted population, it was expected that the responses would be made from a point of knowledge due to the level of awareness within the organizations, of the importance of operational excellence.

## **2.12 Challenges and Way Forward in Operations Improvement**

Operations improvement in any organization requires much more than just asking staff to adopt new working methods. It may turn out to be a painful exercise that results in redundancies and the need to learn and acquire new working skills. Organizations pushing for better working methods must be aware that good results may not come as quickly as expected, but may take time. Patience is therefore required before an improvement initiative can be judged as having succeeded or failed.

In effect, implementation of new operations improvement approaches is a change management exercise that requires relevant skills if success is to be realized. Below are some of the critical success factors for change management that should be embraced by companies adopting new techniques in their set ups;

The first is clear definition of expected outcomes in terms of what we want and its measurable indicators. The next is conducting of a readiness assessment focusing on the entire organization,

the people, the tools, the business processes, the culture, the politics, and the legal environment among others. Then, there is exhibition of strong leadership and openness for change and recognition that change is a people driven process. Finally, use of technology should be seen as an enabler for change, and not a reason for change.

The way forward cannot be properly defined at the moment, but what is certain is a need to be innovative and adopt modern business improvement techniques through research. The use of IT as an enabler of change is likely to continue to dominate improvement efforts. Finally, the users of the products and services offered by organizations would be key to the direction taken in operations improvement if the current competitive trend continues.

## CHAPTER 3: RESEARCH METHODOLOGY

### 3.1 Research Design

The objectives of this research were to study the operations improvement practices among ISO 9001:2000 certified companies in Kenya and to document pre- and post- certification experiences with a view to finding out future plans for adoption of other improvement techniques for enhanced competitiveness. The research design was therefore of survey type meant to understand the improvement practices by the Kenyan business population. The research aimed at exploring the past and current situations and thereafter possibly to try to understand the dominant improvement practices in use. Since the focus of the study was on business operations, the targeted respondents in the study were from middle to top managers who can contribute to policy and operational decisions in their organizations. Where there was a designated position of Operations Manager or Director in an organization, they were the preferred respondents. The questionnaire was designed for collection of data of nominal, ordinal and interval levels of measurement.

### 3.2 Population

The target population for this study came from 128 firms that were ISO 9001:2000 certified in Kenya as at the end of February 2005, based on records obtained from the Kenya Bureau of Standards Certification Department. As already stated earlier, the reason for choice lies on the presumption that ISO 9001:2000 certified organizations are already fully aware of the benefits of competitive advantage through customer focus (Kenya Engineer, 2003). By focusing on this population, the study aimed at avoiding those organizations that are yet to appreciate current management practices. Miyumo (2003) put it that firms adopt ISO 9000 standards in order to achieve internal benefits such as quality or productivity improvements in response to pressure from customers, which is a sign of good business management.

Over 90 % of the targeted organizations have their head offices either in Nairobi, Thika, Mombasa, Nakuru or Kisumu. This meant that, data from these regions were fairly representative of the targeted population and in addition provided the convenience for data collection logistics.

### 3.3 Data collection from targeted population

It should be noted that ISO 9001:2000 certification covers organizations in all sectors of the economy, both in the manufacturing as well as services industry, including consulting services. In order to understand the behaviour in each category, the categories were identified separately during data collection.

Due to the convenience of data collection from firms in major towns, which form about 90 % of the targeted population as stated earlier, data was collected from all the ISO 9001: 2000 certified firms in Kenya to capture as many companies as possible.

Primary data was collected through structured questionnaires with closed and open-ended questions which were addressed and delivered to the middle and top managers of the firms, ranging from Operations Managers up to the Managing Directors, depending on the size of the organization. The questionnaires were also filled by Change Managers and Human Resource Managers among others. Two Research Assistants were used during the data collection exercise.

Although a total of 128 firms were targeted for data collection, it was found out that there were cases where the ISO certification list had two firms, which in actual sense, were different Business units of one large organization. Examples of such firms were; Nation Carriers Ltd & Nation Newspapers Divison and Van Leer (EA) Ltd- Steel & Van Leer (EA)- Plastics, among others. In such organizations, only one set of response was received from the corporate office that controls both divisions. Other organizations such as Thomas De La Rue did not allow data collection for security reasons. The response rate was 84 out of 128, representing 66 % of possible respondents, which is considered acceptable based on past responses such as those from studies by Ngure (2001) and Miyumo (2003) whose response rates were respectively 62 % and 65 %. A list of the targeted firms and those that responded is captured in Annex 1, attached.

The questionnaires were sent to the respondents either by emails or 'drop' and 'pick' method – a copy of the letter to the respondents is shown as Annex 2

Before commencing the actual data collection exercise, the questionnaire was 'tested' by sending it to three selected respondents and some amendments to questions done where difficulties were encountered. The questionnaire that was used is included as Annex 3 to this report.

## CHAPTER 4: PRESENTATION OF RESULTS, ANALYSIS AND DISCUSSIONS

### 4.1 Preparation of Data for Analysis

After collection of all the required data, they were first prepared for analysis by coding and / or editing to transform them into a form that can be analyzed. The purpose of data coding was to change qualitative data into quantitative form for easier analysis. Since this study was of exploratory type, analysis of data that follows is through descriptive statistics with the results presented in the form of tables, bar graphs, and histograms etc, to illustrate variations between companies on different improvement practices.

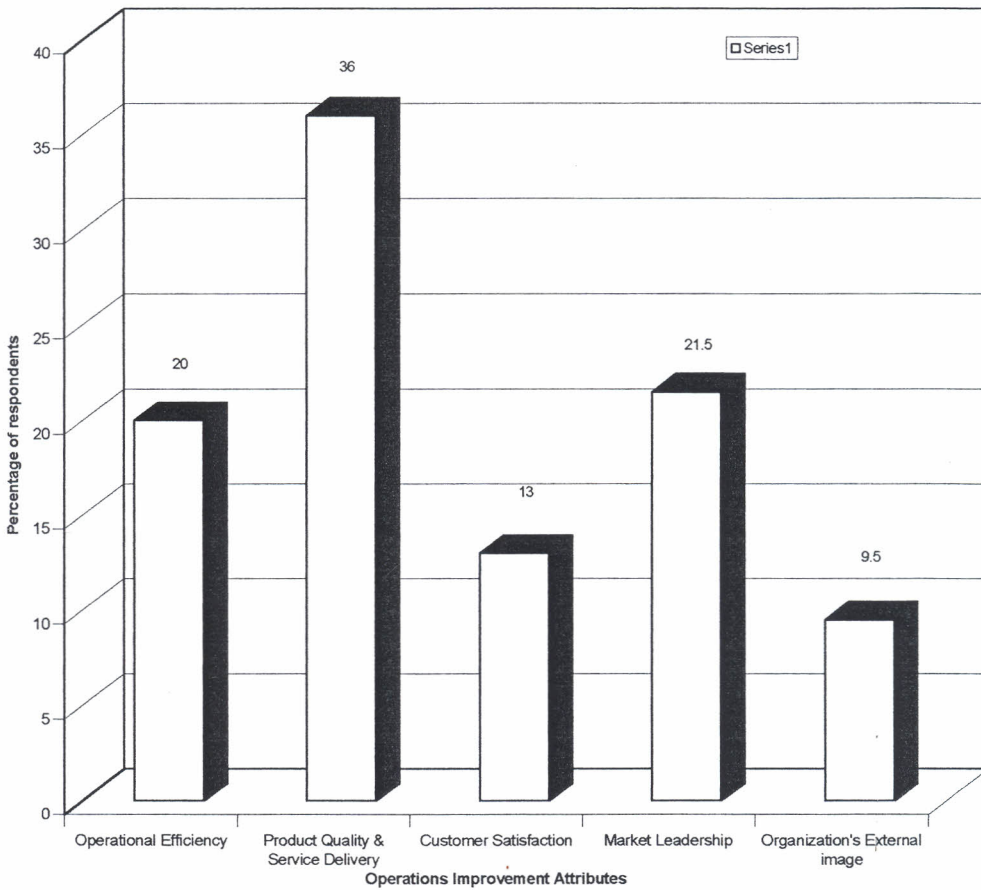
### 4.2 Organizational Profile of Responsive Organizations

Before analyzing the data collected to see how they relate to the project objectives, it is important to have a look at the organizational profiles of the firms that contributed to the survey by filling the study questionnaires. The Research Design had targeted the respondents to be from Top managers, which was indeed the case from the data obtained. But from operations point of view, about 63 % of responses came from those can be said to be knowledgeable enough about the area of study. These responses came from the CEOs, Operations Managers, Strategic / Change Managers, Quality Assurance Managers and ISO Managers. The remaining 37 % came from Human Resource Managers, Marketing Managers and Public Relations Officers.

Although the study targeted the entire business industry, most of the firms were either from manufacturing or services sectors (96.4 %), with consulting and media accounting for only 3.6 %; a majority of the respondents were however from the manufacturing sector. A majority of the firms have their operational bases in East & Central Africa region and are locally owned (51 %), which explains the medium annual turnover of between Kshs 50 to 500 million. Most of the firms attained certification just between 1 and 5 years ago (73 %), implying that many of them have not had sufficient time to realize their long-term objectives. None of the organizations obtained certification more than 10 years ago. That most firms were from the manufacturing sector ties in with available literature linking several improvement methods with the sector.

When the respondents were asked why they sought ISO 9000:2001 certification, the most popular reason was improvement of product quality and service delivery, followed closely by operational efficiency and market leadership. The other reasons are as depicted in Chart 4-C1 below;

Chart 4-C1: Reasons why Organizations sought ISO 9001: 2000 certification



### 4.3 Operations Improvement Approaches Before and After certification

To investigate the operations improvement approaches used by the organizations, the respondents were asked to rate how they focused on various improvement parameters before and after certification. The parameters of concern in this case were: Quality, Reliability / dependability, Flexibility, Operational costs, Return on Investment, Profits, Operational speed, and finally, Processes documentation.

A summary of the responses is depicted in Table 4 - T1 below:



Table 4-T1: Degree of Focus on Key operations improvement parameters before and after ISO Certification

Operations Improvement Parameter	Response on the degree of Focus as a Percentage of all respondents (%)					
	Most Important and Important		Moderately Important and Slightly Important		Not Important at all	
	<i>Before</i>	<i>After</i>	<i>Before</i>	<i>After</i>	<i>Before</i>	<i>After</i>
Quality	15.5	95.2	82.1	2.4	2.4	2.4
Reliability / Dependability	23.8	95.2	73.8	2.4	2.4	2.4
Flexibility	28.6	94.0	69.0	3.6	2.4	2.4
Operational Costs	26.2	95.2	66.7	2.4	7.1	2.4
Return on Investment	31.0	95.2	64.1	2.4	4.8	2.4
Profits	31.0	95.2	66.7	2.4	2.4	2.4
Operational Speed	31.0	94.1	64.3	3.6	4.8	2.3
Processes Documentation	15.5	94.0	77.4	3.6	7.1	2.4

The above figures show that, all the organizations that participated in the survey had a reasonable amount of focus on all operations improvement parameters even before certification. This is illustrated by the high figures for those whose responses were for ‘moderately and slightly important’ that ranged from 64.1 % to 82.1 %, with a mean rate of 70.5%. However, after certification, these figures went down considerably (2.4 % to 3.6 %) and translated to the category of ‘most important and important’ with new figures that ranged from 94 % to 95.2 %. It can be seen from the figures that the highest improvement was recorded for quality and processes documentation, which had risen from 15.5 % to 94 & 95.2 %; an improvement of at least 500 %. In terms of ranking after certification, quality emerged as the most important of all the improvement parameters with an improvement of 514 % from 15.5 % to 95.2 %. It was followed closely by processes documentation.

These responses are generally typical of organizations that follow Total Quality Management principles practiced by many ISO certified firms.

To investigate the operations systems and management styles of operational activities by the organizations, the respondents were asked to rate how they carried out various activities before and after certification.

The issues of concern in this case were: Involvement of all employees when introducing operational changes; Use of bottom- up approach in management of operations decisions; Use of top-bottom approach in management of operations decisions; Centralization of operations decisions through a highly bureaucratic system; Decentralization of operations decisions through a flat organization structure; Benchmarking of operational activities with those of best-in-class competitors; and Involvement of customers for operations improvement.

A summary of the responses is depicted in Table 4-T2 below:

Table 4-T2: Extent of use of operations system and management style before and after ISO certification

Operations system or management style	Response on the extent of use as a Percentage of all respondents					
	Commonly		Rarely		Never	
	<i>Before</i>	<i>After</i>	<i>Before</i>	<i>After</i>	<i>Before</i>	<i>After</i>
Involvement of all employees	16.7	95.2	48.8	4.8	34.5	0.0
Use of bottom-up approach	9.5	94.0	56.0	6.0	34.5	0.0
Use of top-bottom approach	86.9	25.0	13.1	57.1	0.0	17.9
Centralization through bureaucratic system	89.3	8.3	4.8	34.5	5.9	57.2
Decentralization of operational activities	7.10	83.3	16.7	14.3	76.2	2.4
Benchmarking with best-in-class competitors	6.0	90.5	81.0	2.4	13.1	7.1
Involvement of customers for operations improvement	4.8	92.9	92.9	7.1	2.4	0.0

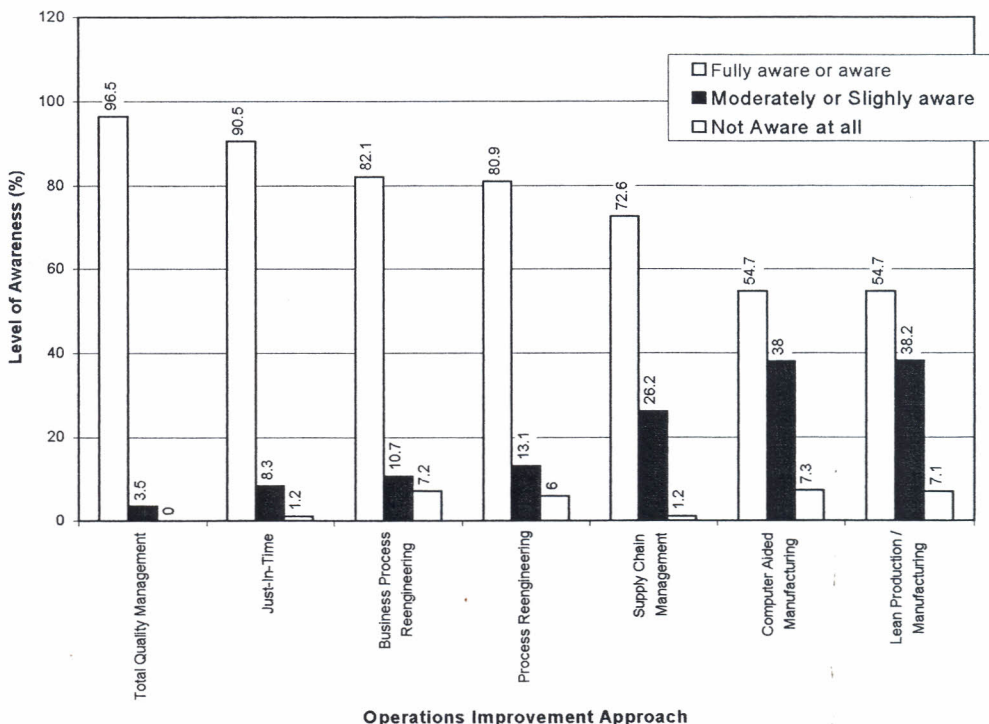
The above results show foremost that, few organizations in this study ever involved customers (4.8 %), and also did not compare their performance with their competitors before certification (6 %). Most of them preferred to use bureaucratic systems that would be described as “dictatorial” due to their use of the top-bottom management approach before certification. It is noteworthy that, after certification, the most significant changes occurred where the bottom-up approach was used, and also where there was involvement of customers and all employees in operations improvement and decisions; these have jointly registered improvements with mean response rates from 10 % before to 94 % after certification, showing about 840 % improvement. Overall, certification appeared to have contributed greatly towards adoption of modern management approaches. These results are concurrent with information from the literature review, which shows evolvement of operations improvement methods as being characterized more by customer focus and decentralization initiatives.

#### 4.4 Other findings on operations improvement practices

In addition to finding out the past and current operations improvement practices, the respondents were also asked about other experiences during the implementation stage of various changes that were introduced. When asked about the nature of changes introduced over the last 5 to 10 years, a majority at 64.3 % responded that the changes in their organizations could best be described as incremental, with only 4.8 % terming them radical. The level of participation in the changes of the processes were generally bottom-up (62 %), while the level of risk since certification was described by 74 % of the respondents as low or moderate. Only 14 % described the level of risk as high.

Once again, the above responses demonstrate the practice of TQM principles that is inherently low risk and focus on continuous improvement using bottom-up management style. No wonder then that, when asked about the level of awareness of various operations improvement approaches, TQM received the highest rating at 96.5 % for those who were fully aware and / or aware. The awareness level for the other approaches is as shown in Chart 4-C2 below:

Chart 4-C2: Level of Awareness of Operations Improvement Approaches

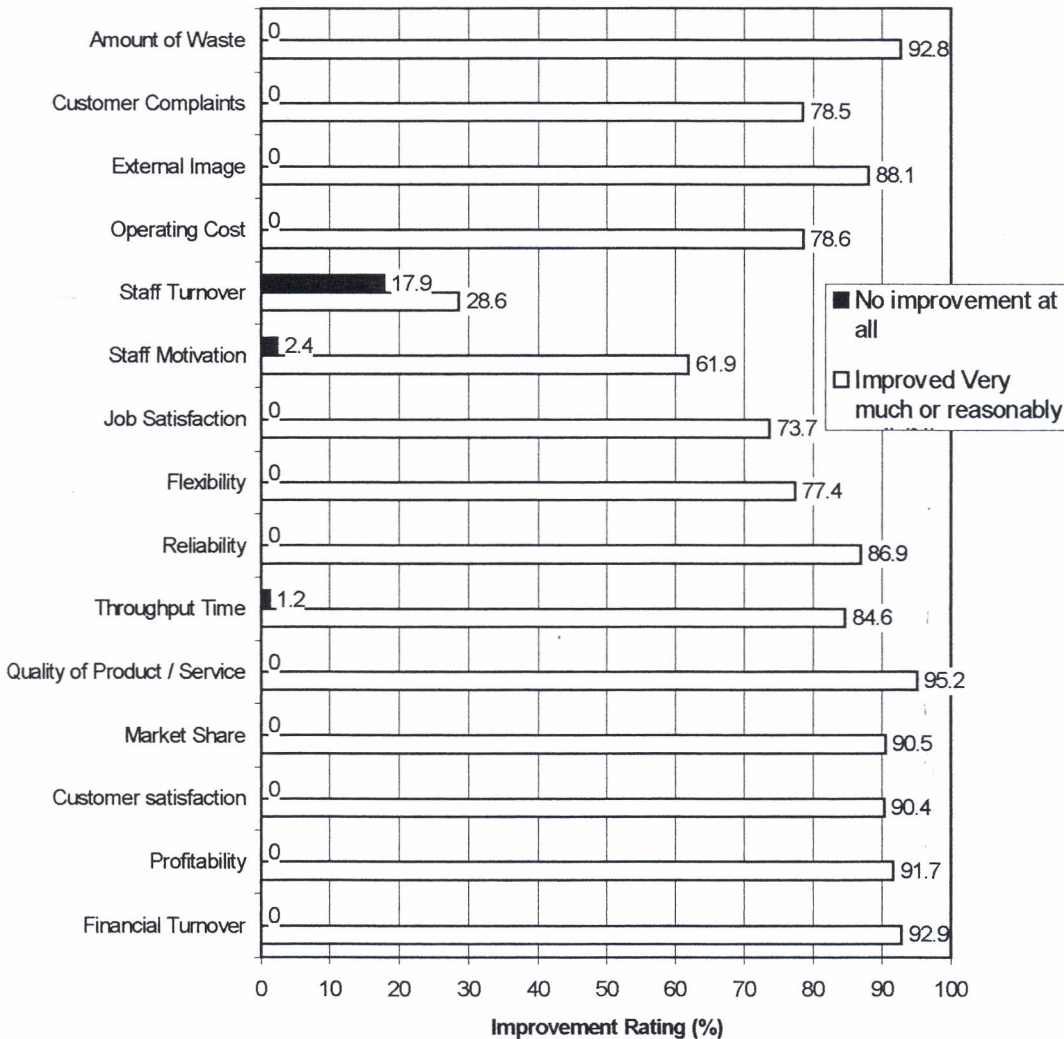


To test one of the known bottlenecks to change management, that is, staff attitude, the respondents were asked about staff perception towards the various operational practices introduced. On a positive note, about 58 % were receptive to the changes being introduced, while 35 % were resistant due to fear of losing their jobs. This result reinforces the cardinal change management principle covered in literature review which ranked change in staff attitude as the biggest obstacle in change management (Gekonge, 1999).

When asked about key success factors during implementation of the operations improvement approaches, a resounding majority of 88 % said top management support was most important. On the other hand, many organizations did not consider the industry type or heavy investment in IT as important; these were rated at about 11 % and 5 % respectively. Many organizations also did not rate use of external consultants highly.

Finally, a question sought to find out how the improvement methods have helped the organizations in achieving their performance objectives using measurable indicators as a basis. In terms of rank, Chart 4-C3 below shows how the various performance indicators fared.

Chart 4-C3: How improvement methods helped organizations to achieve their performance objectives



From the chart above, the highest improvement ratings were recorded in quality of service / product, waste reduction, profitability and financial turnover. Conversely, it is also important to note that staff turnover and motivation received the worst rating in terms of lack of improvement. This possibly shows that despite good results obtained as a result of the improvement approaches, more should be done to motivate staff so as to reduce the turn over rate.

#### 4.5 Main Hindrances during implementation of operations improvement techniques

Table 4-T3 below shows the responses given regarding implementation hindrances:

Table 4-T3: Main hindrances during implementation of improvement techniques

Implementation Hindrances	Hindrances in order of seriousness (%)		
	Most critical and critical	Moderately and Slightly critical	Not Critical at all
Poor staff attitude towards change	79.7	17.9	2.4
High Cost of implementation	57.1	42.9	0
Time taken for training and implementation	66.6	33.4	0
Lack of suitable skills	41.6	46.5	11.9
Over reliance on IT	21.4	61.9	16.7
Lack of adequate management support	53.5	32.2	14.3
Poor communication method to staff	53.6	36.9	9.5
Long lead-time before realizing results	29.7	64.3	6

The biggest obstacles from the above table are poor staff attitude, high cost of implementation and time taken for training and implementation. These are typically the problems faced by many organizations. To some extent, lack of management support is also fairly critical.

The above results are consistent with later responses which showed that 74 % of the respondents regard change as a people driven process, implying that for effective results, the employees must have the right attitude and be part and parcel of the process.

#### 4.6 Possible ways of improving performance in view of ever-changing competitive pressures.

When respondents were asked to propose possible ways of improving operational performance, the least favoured approach was radical approach from existing methods (49 %). In fact, 90.5 % preferred incremental departure from existing methods and also a flatter organization structure. Benchmarking with best-in-class organizations ranked first with 96.4 %. These results show how organizations that were studied did not seem to prefer the ‘clean -slate approach’ principle of Business Process Reengineering. However, the fact that 49 % favour a radical approach is an

illustration that being ISO 9000 certified does not automatically imply that, such firms only follow TQM principles. Chart 4-C4 below illustrates the rest of the preferences.

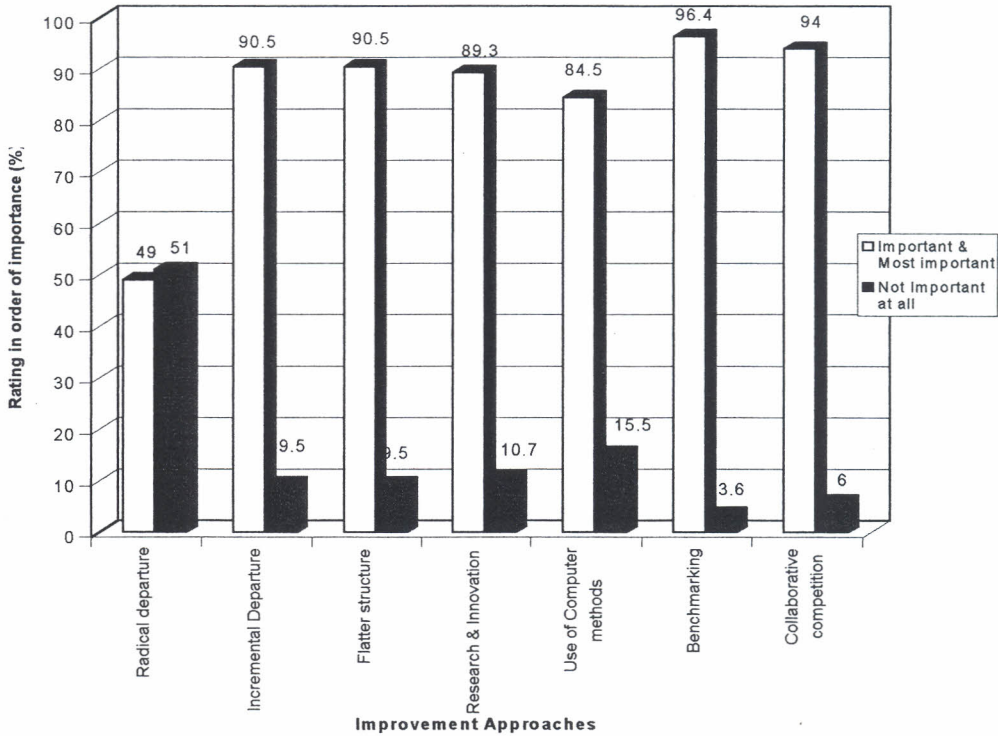


Chart 4-C4 – Ways of improving operational performance

#### 4.7 Triggers for adoption of better operations management techniques for competitive advantage

Finally, the respondents were asked to state the possible triggers for adoption of better operations improvement techniques. Cutting jobs and costs reduction received the highest percentage by being rated low. The highest rated triggers were ‘need for innovation’ and ‘period of crisis’ respectively. Another well-rated trigger was ‘exploration of new business processes already in use by others’, which had 48.8 % of the respondents rating it high.

## CHAPTER 5: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Summary of Results and Conclusions

Before summarizing the results, it is worth recording that as per the project proposal intention to target middle to senior managers in the data collection exercise, this requirement was met as shown in Chart 4-C1 in sub section 4.2 above. Of the senior managers, 63 % of them could be said to be sufficiently knowledgeable as far as organization operations are concerned. The rest of the results based on the study objectives are as discussed below; with specific reference to the study objectives.

#### 5.1.1 Improvement approaches used by ISO 9001:2000 certified firms in Kenya.

Operations Parameters: The parameters that were put to the respondents to test the extent of use of the approaches were as follows: Quality, Reliability / Dependability, Flexibility, Operational Costs, Return on Investment, Profits, Operational Speed, and Processes Documentation

In terms of the key operations improvement parameters, nearly all firms were aware of their importance before certification, even though they did not regard them highly. This is illustrated by the response rates that ranged from 64.1 % to 82.1 for firms that regarded these parameters as either moderately important or slightly important. On average, 70.5 % held the same view even before certification. The fact that only 23.8 % to 31 % of the respondents regarded the parameters as most important / important showed that despite the high level of awareness, there was need for intervention as far as use of the improvement approaches are concerned.

After certification, firms that regarded the parameters as most important / important rose sharply to between 94 % to 95.2 %, showing a positive impact of certification on the attitude of the firms' management.

Quality and Process documentation registered the highest perception improvement from about 15 % to 95 %.

Operations Systems and Activities Management: The results of the survey show that, before certification, most firms operated as closed systems characterized by bureaucratic and centralized operations where neither customers nor employees had a say in how firms' outputs were produced, be they products or services. The opposite was the case after certification with an average of 90 % of the firms using modern management styles compared to about 10 % before.

### **5.1.2 Reasons for pursuit of new operations improvement approaches and their ranking**

The most popular reason for pursuit of the new improvement approaches was achievement of product quality / service delivery (36 %), followed by operational efficiency and market leadership with about 20 %.

The above reasons are somewhat consistent with responses to subsequent questions regarding achievement of performance objectives. As Chart 4-C3 in section 4 shows, over 90 % of the organizations reported having improved with respect to quality of product / service, financial turnover, profitability, market share, customer satisfaction and amount of waste. An interesting observation was the lowest ratings recorded for staff turnover and staff motivation, which could be a pointer that the organizations' gains may not have been shared equitably with staff.

### **5.1.3 Challenges faced by ISO certified firms during implementation of the improvement approaches and their future plans**

The main hindrances cited by a majority of the organizations during implementation of the improvement techniques was poor attitude of staff towards change (79.7 %), followed by time taken for staff training as well as time during implementation (66.6 %). About 57 % responded that cost of implementation is a hindrance. The least concern appears to be IT which is cited as a hindrance by only 21 % of the respondents. This seems to support the widely held view that IT should be an enabler of change, and not a reason for change.

The above observations indicate the level of impatience of most managers of organizations who do not seem to realize that to achieve required success, there has to be up-front investment and patience in terms of money and time. In other words, good results in most cases do not come immediately.

In terms of the way forward, it is clear that, a majority of the organizations are not yet ready for radical changes. They prefer incremental changes supported by research & innovation, and benchmarking and collaborative competition initiatives. While it was obvious from the results that a period of crisis would trigger adoption of new operations improvement methods, others thought the need for innovation would also be a trigger even when there is no crisis; that is, during period of success.



#### **5.1.4 Conclusions**

Based on the results of the study and the analysis that followed, certain conclusions have emerged. Many organizations were aware of most operations improvement techniques even before obtaining certification, although few put them in practice. After certification, the techniques were put in practice with different levels of possible results based on individual organization's objectives. Most organizations have been found to have adopted operations improvement techniques foremost to improve products quality / service delivery and operational efficiency as well as to reduce time wastage and defects. At the same time, the organizations were conscious of the financial rewards associated with quality and efficiency by focusing on turnover, profitability and market share. Change in staff attitude has also emerged to be the main obstacle during implementation of various improvement techniques. This is a change management challenge for which ways of addressing must be sought. Although implementation time and cost were also recorded as obstacles, these are elements that cannot be avoided when introducing new changes meant to improve performance. It is also evident from the study that a majority of organizations prefer incremental approaches for operations improvement. However, it was noted at the same time that others embrace radical approaches or both. It can therefore be concluded that both approaches can be used complementarily and not in isolation of one another. Finally, the study also shows that other than periods of crisis, new operations improvement approaches can be introduced even during periods of success through research for innovative methods, to stay ahead of competition.

#### **5.2 Recommendations from the Study**

The study generally shows that many organizations prefer the cautious approach with minimal risk in dealing with operations improvement issues. This is mainly caused by reluctance of staff to accept that to improve in performance; sometimes it is necessary to break with the past. Based on this, I recommend that as organizations pursue better improvement approaches through incremental methods, they should move faster towards radical changes as they learn from the past to make improvements for the future. While it does not look practical to wholly practice the 'clean-slate' approach advocated by proponents of Business Process Reengineering, it is also not beneficial to be so enslaved to the past to the extent where trying new ways of doing things becomes a nightmare. It is only by going towards the unknown through research that new inventions and discoveries can be made.

### **5.3 Limitations of the Study**

Study limitations can best be determined during data collection exercise and data analysis. For this study, the limitations that have been encountered are discussed in the paragraphs below;

During preparation of the project proposal, I had assumed that since ISO certified firms are already conscious of the need to improve performance to be competitive, all of them were going to be open and share their experiences by responding to the questionnaires. This was however not the case with some firms citing security issues and confidentiality as reasons that could not enable them to participate in the study by completing the questionnaire forms. Such firms included Thomas De La Rue, Magadi Soda and Fina Bank. Although a limitation, this did not affect the outcome of the study due to the high response rate of 66 %.

The study had targeted firms in all parts of the country. However, during data collection, it proved difficult to collect data from up-country due to difficulties in making follow-ups as a result of time constraints. Although most ISO certified firms have their headquarters in Nairobi, data collection would have been much more representative if there was sufficient time to enable data collection from firms outside Nairobi.

Finally, the study had targeted middle to senior managers to provide data on behalf of the organizations. Results on critical issues within the organizations have appeared to be somewhat consistent and predictable, that leads one to think that the officers may have been covering their backs by reporting what is expected rather than what actually occurs. In such a case, one is left wondering whether the same results would be obtained if some of the questionnaires had been responded to, by lower to middle managers.

### **5.4 Recommendations for Further Research**

Due to the fact that it is possible for senior managers to appear to protect their positions by giving friendly responses, I recommend that further research be carried out with the same objectives, but this time, the questionnaires should be filled by two people in each organization; one senior manager and one junior or middle-level manager. By doing this, it is possible that certain facts which could not be captured under this study may come to light.

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**ANNEX 1 : LIST OF THE RESPONSE RATE OF ISO 9001: 2000 CERTIFIED ORGANIZATIONS DURING DATA COLLECTION**

*(Firms that did not respond are shown in BOLD Italics)*

NO.	NAME OF FIRM / ORGANIZATION
1	AFRICA MARINE AND GENERAL ENG. (AMGECO) –MOMBASA
2	AGA KHAN HOSPITAL, NAIROBI
3	<b>AGA KHAN HOSPITAL , MOMBASA</b>
4	AGROCHEM. AND FOOD CO LTD.
5	ALLOY STEEL CASTINGS LTD
6	ALLPACK INDUSTRIES LTD
7	<b>AQUAMIST</b>
8	<b>ARIMAN TECHNOLOGIES</b>
9	ASHUT ENGINEERS LTD
10	<b>ASP COMPANY –NAIROBI</b>
11	ASSOCIATED BATTERY MANUFACTURERS
12	ATHIRIVER MINING
13	ATLAS COPCO KENYA LTD.
14	AZICON ENGINEERING LTD.
15	BAGS & BALERS MANUFACTURERS LTD
16	BAMBURI SPECIAL PRODUCTS
17	<b>BIDCO ELIANTO DIVISION</b>
18	BIDCO OIL REFINERIES LTD
19	BLOWPLAST LIMITED
20	BOX CLEVER KENYA LTD
21	CALTEX OIL (K) LTD. – DISTRIBUTION
22	CALTEX OIL (K) LTD. – LUBE PLANT
23	CARGIL KENYA LTD
24	CARNAUD METAL BOX LTD.
25	CARTON MANUFACTURERS LTD
26	CEMPACK LTD
27	CENTRAL GLASS INDUSTRIES LTD-NAIROBI
28	CITIBANK N.A KENYA
29	<b>COASTAL BOTTLERS LTD-MOMBASA</b>
30	COATES BROTHERS E A LTD
31	COOK N LITE
32	<b>CROWN FOODS</b>
33	<b>DE LA RUE CURRENCY &amp; SECURITY PRINT</b>
34	<b>DELMONTE</b>
35	DHL INTERNATIONAL (K) LTD
36	<b>DODHIA PACKAGING LTD</b>
37	E.A ELEVATORS CO LTD
38	E.A FOUNDRY LTD
39	<b>E.A PACKAGING IND ( MOMBASA)</b>
40	<b>E.A PACKAGING IND.(NAIROBI)</b>
41	E.A SPECTRA LTD
42	<b>EPCO BUILDERS</b>

NO.	NAME OF FIRM / ORGANIZATION
43	<i>FINA BANK</i>
44	FIRESTONE E A LTD
45	<b><i>FRIENDSHIP CONTAINER MANUFACTURING LTD</i></b>
46	<b><i>GAL SHEET (K) LTD.</i></b>
47	GENERAL MOTORS LTD-NAIROBI
48	<b><i>GENERAL PLASTICS LTD</i></b>
49	GENERAL PRINTERS LTD
50	GLAXOSMITHKLINE –NAIROBI
51	GOLDCROWN BEVERAGES
52	HEALTHFIRST INTERNATIONAL
53	HEIDELBERG EAST AFRICA
54	HENKEL KENYA LTD
55	HIGHLAND CANNERS LTD.
56	HOMEGROWN KENYA
57	IBERAFRICA LTD
58	INKS KENYA LTD
59	<b><i>INSTITUTE OF ADVANCED TECHNOLOGY</i></b>
60	<b><i>INTERTEK SERVICES LTD-MOMBASA</i></b>
61	JOHNSON DIVERSEY
62	KALUWORKS LTD/MOMBASA
63	KENGEN
64	KENOL KOBIL
65	KENWESTFAL LTD
66	KENYA ASSOCIATION OF MANUFACTURERS
67	KENYA BIXA LTD.
68	KENYA BREWERIES LTD-NAIROBI
69	<b><i>KENYA CUTTINGS LTD</i></b>
70	KENYA LITHO LTD
71	<b><i>KENYA MALTINGS LTD-MOLO</i></b>
72	KENYA MALTINGS LTD-NAIROBI
73	<b><i>KENYA PETROLEUM REFINERIES LTD.</i></b>
74	KENYA POSTEL DIRECTORIES
75	KENYA SHELL DISTRIBUTION
76	KENYA SHELL LTD
77	MABATI ROLLING MILLS
78	<b><i>MAGADI SODA LTD.</i></b>
79	<b><i>METAL CROWNS LTD</i></b>
80	MOBIL OIL (K) LTD.
81	MOBIL OIL (K) LTD. – LUBE PLANT
82	<b><i>MULTIPOINT INTERNATIONAL LTD</i></b>
83	NATION CARRIERS LTD.
84	NATION MEDIA GROUP
85	NATION NEWSPAPER DIVISION
86	<b><i>OASIS LTD</i></b>
87	PAN AFRICAN PAPER MILLS

NO.	NAME OF FIRM / ORGANIZATION
88	POWER TECHNICS
89	<i>PREMIUM DRUMS</i>
90	<i>PRESTIGE PACKAGING LTD.</i>
91	PROCTOR AND ALLAN
92	ROSEWOOD OFFICE SYSTEMS
93	ROY TRANSMOTORS LTD
94	SADOLIN PAINTS
95	SAMAKI INDUSTRIES LTD.
96	SDV TRANSAMI LTD
97	SECUREX
98	<i>SGS LABORATORY-MOMBASA</i>
99	<i>SILPACK INDUSTRIES LTD</i>
100	SLUMBERLAND KENYA LTD
101	<i>SOUTHERN ENGINEERING CO. LTD</i>
102	SPINNERS AND SPINNERS (ISO 9000)
103	STANDARD CHARTERED BANK
104	STEADMAN RESEARCH SERVICES
105	STEEL AFRICA LTD
106	STRATHMORE UNIVERSITY
107	<i>TAWS LTD</i>
108	<i>TETRA PAK (K) LTD.</i>
109	THERMOPACK LTD (BRC STANDARD)
110	<i>THREE MICE INTERACTIVE MEDIA</i>
111	TIBBET AND BRITTEN
112	TOTAL KENYA LIMITED – SERVICE STATION NETWORK
113	TOTAL KENYA LTD
114	TREADSETTERS TYRE LTD
115	<i>TRIAD ARCHTECTS</i>
116	<i>TWIGA CHEMICALS</i>
117	<i>UNGA TECHNICAL DEPT</i>
118	<i>UNILEVER KENYA LTD</i>
119	UNION LOGISTICS
120	<i>UNIQUE SUN APPARELS EPZ LTD</i>
121	VAN LEER E A LTD. – STEEL DIVISION
122	VAN LEER E A LTD. – PLASTIC DIVISION
123	VESTERGAARD
124	VIPUL SHAH AND CO.
125	<i>VITAPLAST LTD</i>
126	<i>WARTSILLA E.A LTD (ISO 9000)</i>
127	<i>ZAKHEM CONSTRUCTION (K) LTD-NAIROBI</i>
128	<i>ZAKHEM INTERNATIONAL CONSTRUCTIO CO. LTD</i>

## ANNEX 2- LETTER TO RESPONDENTS

Dear Respondent,

**RE: GEORGE O WAGWA – REGISTRATION NO. D/61/P/8592/2000  
MASTERS IN BUSINESS ADMINISTRATION (MBA) RESEARCH PROJECT**

The above named is a post -graduate student in the Faculty of Commerce, University of Nairobi, pursuing a Masters Degree in Business Administration. He is undertaking a management research project entitled “**A survey of operations improvement practices among ISO 9001:2000 certified organizations in Kenya**”

Your organization falls within the population of interest and has been selected to form part of this study. You are therefore kindly requested to assist in collection of primary data by filling the attached questionnaire to the best of your knowledge. If you find any part of the questionnaire not clear, he will be glad to offer clarification at any time.

The information you will give is for academic purposes only, and will be treated in strict confidence and at no time will your name or that of your organization be mentioned in the report with respect to specific practices. A copy of the final report will be made available to you on request.

Your honest participation in this research will be highly appreciated.

Thank you for your cooperation.

Yours Faithfully,

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**Dr Jackson Maalu**  
**Coordinator**  
**MBA Parallel Degree Programme**  
**University of Nairobi**

## ANNEX 3 – SURVEY QUESTIONNAIRE

This Research is intended to survey the past and present operations improvement practices used by ISO 9001: 2000 certified companies in Kenya's business environment. It is expected to establish reasons for pursuit of specific operations improvement approaches which will lead to documentation of future plans by the ISO 9001:2000 certified companies for other operations improvement practices necessary for enhanced competitive edge.

Please provide answers to the following questions by ticking against the most suitable alternative or giving narrative responses in the spaces provided

### **All your responses will be treated with strict confidence**

#### SECTION 1- ORGANIZATION PROFILE:

1. What is the name of your organization?

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2. What is your position or its equivalent in this organization?

- a. Chief Executive Officer / Managing Director [ ]
- b. Operations Manager [ ]
- c. Strategic / Change Manager [ ]
- d. Human Resources Manager [ ]

e. Other; Specify -----

3. What is the current number of employees in your organization (Kenyan Office)?

- a. Less than 50 [ ]
- b. Between 50 and 100 [ ]
- c. Between 100 and 500 [ ]
- d. Over 500 [ ]

4. In general terms, what industry do you consider your organization to be in?

- a. Manufacturing [ ]
- b. Services [ ]

**SECTION 2 – OPERATIONS IMPROVEMENT PRACTICES**

10. How would you rate your organization’s perception on a scale of 1 to 5 on the following parameters, before ISO 9001:2000 certification? [1 = most important; 5 = least important]

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
a. Quality	[ ]	[ ]	[ ]	[ ]	[ ]
b. Reliability / dependability	[ ]	[ ]	[ ]	[ ]	[ ]
c. Flexibility	[ ]	[ ]	[ ]	[ ]	[ ]
d. Operational Costs	[ ]	[ ]	[ ]	[ ]	[ ]
e. Return on Investment	[ ]	[ ]	[ ]	[ ]	[ ]
f. Profits	[ ]	[ ]	[ ]	[ ]	[ ]
g. Speed of an operation	[ ]	[ ]	[ ]	[ ]	[ ]
h. Processes documentation	[ ]	[ ]	[ ]	[ ]	[ ]

11. How would you rate your organization’s perception on a scale of 1 to 5 on the following parameters, after ISO 9001:2000 certification? [1 = most important; 5 = least important]

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
a. Quality	[ ]	[ ]	[ ]	[ ]	[ ]
b. Reliability / dependability	[ ]	[ ]	[ ]	[ ]	[ ]
c. Flexibility	[ ]	[ ]	[ ]	[ ]	[ ]
d. Operational Costs	[ ]	[ ]	[ ]	[ ]	[ ]
e. Return on Investment	[ ]	[ ]	[ ]	[ ]	[ ]
f. Profits	[ ]	[ ]	[ ]	[ ]	[ ]
g. Speed of an operation	[ ]	[ ]	[ ]	[ ]	[ ]
h. Processes documentation	[ ]	[ ]	[ ]	[ ]	[ ]

12. To what extent did you do the following before ISO 9001: 2000 certification?

	<b>Commonly</b>	<b>Rarely</b>	<b>Never</b>
a Involving all employees when introducing changes	[ ]	[ ]	[ ]
b Using bottom –up approach in decision making	[ ]	[ ]	[ ]

c	Using top-bottom approach in decision making	[ ]	[ ]	[ ]
d	Using bureaucratic approach through centralization of operations in decision making	[ ]	[ ]	[ ]
e	Decentralization of operational activities	[ ]	[ ]	[ ]
f	Comparing our operational performance with those of best in class (competitors)	[ ]	[ ]	[ ]
g	Involving customers as a means improving operations approaches	[ ]	[ ]	[ ]

13. To what extent did you do the following after ISO 9001: 2000 certification

		<b>Commonly</b>	<b>Rarely</b>	<b>Never</b>
a	Involving all employees when introducing changes	[ ]	[ ]	[ ]
b	Using bottom –up approach in decision making	[ ]	[ ]	[ ]
c	Using top-bottom approach in decision making	[ ]	[ ]	[ ]
d	Using bureaucratic approach through centralization of operations in decision making	[ ]	[ ]	[ ]
e	Decentralization of operational activities	[ ]	[ ]	[ ]
f	Comparing operational performance with those of best in class (competitors)	[ ]	[ ]	[ ]
g	Involving customers as a means improving operations approaches	[ ]	[ ]	[ ]

14. How would you describe the nature of changes your organization has introduced to improve operational performance over the last 5 to10 years?

a. Radical [ ]



- b. Incremental / Continuous [ ]
- c. Both (a) & (b) above [ ]
- d. Others; State .....

15. How would you describe the level of participation in the operational change processes referred to in 14 above?

- a. Bottom – up [ ]
- b. Top – bottom [ ]
- c. Not Applicable [ ]
- d. Others; Specify .....

16. How would you describe the level of risk associated with the operational improvement methods used in your organization since attainment of ISO 9001:2000 certification?

- a. High [ ]
- b. Low [ ]
- c. Moderate [ ]
- d. No risk [ ]

17. What can you say to have been the perceptions of staff / employees towards the operational improvement approaches used by your organization?

- a. Receptive [ ]
- b. Resistant due to fear of losing their jobs [ ]
- c. Resistant for other reasons; state; .....
- d. Others; state .....

18. On scale of 1 to 5, state your level of awareness of the following operations improvement approaches ( 1= fully aware; 5 = not aware at all)

	1	2	3	4	5
a. Total Quality Management	[ ]	[ ]	[ ]	[ ]	[ ]
b. Just-In- Time	[ ]	[ ]	[ ]	[ ]	[ ]
c. Business Process Reengineering	[ ]	[ ]	[ ]	[ ]	[ ]
d. Process Reengineering	[ ]	[ ]	[ ]	[ ]	[ ]
e. Supply Chain Management	[ ]	[ ]	[ ]	[ ]	[ ]
f. Computer Aided Manufacturing	[ ]	[ ]	[ ]	[ ]	[ ]
g. Lean Production / Manufacturing	[ ]	[ ]	[ ]	[ ]	[ ]

19. On scale of 1 to 5, state your experiences in order of importance during implementation of the operations improvement approaches you have used ( 1= most important; 5 = Least important)

	1	2	3	4	5
a. Top management support	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Involvement of all staff cadres	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Use of external consultants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Prior training of staff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Heavy investment in IT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Success depends on industry type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Alignment to firm's strategy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Staff formal education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Firm's organization structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20. To what extent have improvement methods employed by your organization helped in achieving objectives related to the following ( 1= Very Much ; 2 = Reasonably Well; 3 = Moderately Well; 4 = slightly; 5 = not at all)

	1	2	3	4	5
a. Financial turnover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Profitability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Customer satisfaction (external & internal)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Market share	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Quality of product / service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Throughput time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Reliability of product / service delivery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Flexibility of products / services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Job satisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Staff motivation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Staff turnover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Operating cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Organization's external image	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. Reduced complaints	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. Amount of waste	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p. Others; specify -----	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**SECTION 3 – CHALLENGES AND WAY FORWARD IN OPERATIONS IMPROVEMENT**

21. What would you consider to be the main hindrance encountered in implementing operations improvement techniques? ( 1= most severe; 5 = least severe)

	1	2	3	4	5
a. Attitudes of staff for change	[ ]	[ ]	[ ]	[ ]	[ ]
b. High cost of implementation	[ ]	[ ]	[ ]	[ ]	[ ]
c. Time taken for training & implementation	[ ]	[ ]	[ ]	[ ]	[ ]
d. Lack of suitable skills	[ ]	[ ]	[ ]	[ ]	[ ]
e. Over reliance on IT	[ ]	[ ]	[ ]	[ ]	[ ]
f. Lack of management support	[ ]	[ ]	[ ]	[ ]	[ ]
g. Poor method of communication to staff	[ ]	[ ]	[ ]	[ ]	[ ]
h. Long lead -time before realizing results	[ ]	[ ]	[ ]	[ ]	[ ]
i. Other, State	[ ]	[ ]	[ ]	[ ]	[ ]

22. Please rate how the following might be used for performance improvement in your organization in view of the ever changing competitive business environment

No	Item description	Very Important	Important	Not Important
(i)	Radical departure from existing improvement approaches	[ ]	[ ]	[ ]
(ii)	Slow / incremental departure from existing improvement approaches	[ ]	[ ]	[ ]
(iii)	Flatter organization structure with fewer layers of authority	[ ]	[ ]	[ ]
(iv)	Focus on Research for more innovative methods	[ ]	[ ]	[ ]
(v)	Use of more computer-based methods for operational efficiency	[ ]	[ ]	[ ]
(vi)	Continuous comparison of critical performance indicators with those of competitors and best-in-class	[ ]	[ ]	[ ]
(vii)	Embracing collaborative	[ ]	[ ]	[ ]

competition by sharing  
information between the value-  
adding processes and consumers

(viii) Any other, Specify ----- [ ] [ ] [ ]

23. Please rate the following possible triggers (reasons) for adoption of better operations improvement techniques for competitive advantage.

<u>No</u>	<u>Requirement</u>	<u>Low</u>	<u>Medium</u>	<u>High</u>
(i)	Period of crisis	[ ]	[ ]	[ ]
(ii)	Period of success	[ ]	[ ]	[ ]
(iii)	Need for innovation	[ ]	[ ]	[ ]
(iv)	To stay ahead of competition	[ ]	[ ]	[ ]
(v)	To maintain market leadership	[ ]	[ ]	[ ]
(vi)	To cut jobs and reduce costs	[ ]	[ ]	[ ]
(vii)	To explore new business processes already in use by others	[ ]	[ ]	[ ]

24. Implementation of operations improvement practices requires clear understanding and appreciation of operational change management skills. In a scale of 1 to 5, how would rank the following factors of change management: [ 1 = most important; 5 = least important]

	1	2	3	4	5
a. Clear definition of measurable outcomes	[ ]	[ ]	[ ]	[ ]	[ ]
b. Readiness assessment for change variables	[ ]	[ ]	[ ]	[ ]	[ ]
c. Strong leadership skills by change agents	[ ]	[ ]	[ ]	[ ]	[ ]
d. Use of technology as enabler for change	[ ]	[ ]	[ ]	[ ]	[ ]
e. Use of technology as reason for change	[ ]	[ ]	[ ]	[ ]	[ ]
f. Effective communication strategy	[ ]	[ ]	[ ]	[ ]	[ ]
g. Recognition of change as a people process	[ ]	[ ]	[ ]	[ ]	[ ]

25. What other information would you like to provide to improve operational performance in your organization?

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**THANK YOU VERY MUCH FOR FILLING THE QUESTIONNAIRE.**