

**PROCESS ELEMENT OF TQM AND OPERATIONAL
PERFORMANCE OF AIRLINES IN KENYA**

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DECLARATION

I, the undersigned, declare that this is my original work and has not been submitted to any other College, Institution or University for the award of any degree.

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This Research project has been submitted for examination with my approval as a university supervisor.

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Special gratitude to my supervisor, Dr. Okwiri, for his guidance and whole hearted dedication towards the completion of my research project. I also salute my fellow classmates and friends for their support and encouragement. To all of you, I say, God bless you.

DEDICATION

To my dear wife Lilian, children Jesse, Blessing and Renee for their emotional, spiritual and moral support during the entire period of the study.

ABSTRACT

The purpose of this study was to establish the effect of the process element of total quality management and operational performance of airlines in Kenya. The study had three objectives to achieve: To determine the effectiveness of processes in airlines in Kenya; determine the relationship between process effectiveness and operational performance in the airline sector in Kenya and to determine the effect of environmental stability on the relationship between process management and operational performance. The study took the form of a cross-sectional research design targeting employees of two main airlines operating from Jomo Kenyatta International airport. Stratified sampling was used to select 130 respondents who took part in the study. A questionnaire was used to collect primary data from the respondents. The data collected was analysed using descriptive statistics and correlation analysis. The findings were presented in tables. The study established that Process effectiveness among airlines in Kenya is manifested in three main ways. Processes that are prevalent in the airlines assist significantly in simplifying the work activities; processes that are used by the airlines play a very significant role in removing work related ambiguities; processes used by airlines are important in ensuring that there is some level or degree of work consistency. There exists a positive correlation between processes used by the airlines and the ability of processes to simplify work; processes used and the work being dependent on processes; technological changes and ability of processes to remove work related ambiguities and between technological changes and work being dependent on processes. The relationship between employees of different departments within an airline directly affects the external customers. It is also clear that safety measures taken by an airline influences to a large extent the decision of the customer to fly with the airline. It was also evident that compliance to regulations is one way of enhancing safety in the airlines. As for the effect of environmental instability on the relationship between process effectiveness and operational performance, the study finds that there is some effect exerted.

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CHAPTER ONE: INTRODUCTION

1.1 Background

Quality, according to Juran (2004), is meeting or exceeding customer expectations. It also means all the activities that an organization undertakes to ensure that its products and/ or services meet their customers' needs. TQM (Total Quality Management) is described as a strategic action that focuses on managing the total organization to provide clients with products or services that satisfy them, through the mobilization of the individuals, management leadership and the cohesion of all the resources of the firm (Oakland, 2004). Much of the research which has looked into the contributions of total quality management (TQM) on competitive advantage shows that its introduction leads to improved performance and greater competitiveness (Samson and Terziovski, 1999 and Zhang, 2001).

An organization can achieve competitive advantage using quality via the operations route or the marketing route (Okwiri, 2012). It is argued that the operations route leads to competitiveness through effectiveness and consistency of processes, which in turn leads to higher productivity, reliability and speed of delivery.

Various models have been used to represent the concept of TQM. Some of these models are; The Malcolm Baldrige National Quality Awards (MBNQA), The European Foundation for Quality Management (EFQM) and the Oakland (2004) model. MBNQA is an award that promotes awareness of performance excellence as an important element in competitiveness (Stone, 1997). In the MBQA (2011) model, TQM elements are expressed as leadership, information and analysis, strategic planning, people, process

management, business results and customer and satisfaction (Stone, 1997). While the EFQM (2013) model focuses on enablers and results. Here, the enablers to excellent business results are proposed to be leadership, people, strategy, partnerships & resources and processes.

Oakland (2004), in his new framework, suggests a model with two categories which are expressed as the 'Soft' and the 'Hard' elements. The 'soft' elements are defined as culture, communication and Commitment, referred to as the 3 C's. The 'Hard' elements are defined as Planning, People, Process and Performance.

In all the three models above, process is proposed as one of the elements of TQM that organizations use as a strategy to respond to changes in their operational environment. A conclusion based on the above models indicates that processes are key to delivering operational performance.

1.1.1 Process Element of TQM

Keller (2011) defines a process as the transformation of a set of inputs into outputs that satisfy customer needs and expectations in the form of products, information or services. In each area or function of an organization there will be many processes taking place. It is the effective processes that satisfy customers and stakeholders. It is argued that all organizations need effective process management and that underperformance is caused by poor processes.

Brice (2010) proposes the following as some of the principles of process management. Business processes need to be documented in order to minimize variability in what each

individual does in the organization. Processes should be continuously improved as the goals of the company change. The concept of process ownership is introduced and refers to the person in the organization responsible for defining and improving the process. The Plan Do Check and Act (PDCA) model has been proposed to guide process management (Arora, 2007).

It is considered that organizational performance is an outcome of effectiveness of the processes and their management. The link is through the influence of operational performance. One of the airlines under study has many processes in place that guide its daily operations (Airlines' notices, 2010).

1.1.2 Operational Performance

Operations seek to achieve the objectives of quality, cost, timeliness/speed and flexibility. Russel and Taylor (2011) argue that to compete on quality, organizations must view it as an opportunity to please the customer and not just as a way to avoid problems or reduce rework costs. Award winning companies have their entire system designed to understand the individual expectations of their customers. It is argued that every employee is empowered to take immediate action to satisfy a guest's wish or to resolve a problem. Competing on flexibility demands that customers get more variety and higher speed of delivery (Russel and Taylor, 2011). It includes providing a wide variety of products or services and also the ability of a firm to customize the existing ones quickly in order to respond to customer needs.

The customer would prefer a higher quality service but to pay less for it. In the airline industry, quality is enhanced by having redundant systems that help meet customers demand for both flexibility and higher speed of service delivery. This may lead to higher quality for the customer, but it causes the problem of idle capacity. The efficiency and effectiveness of an organization are factors in achievement of any of the above objectives. These issues are applicable and affect success in the airline industry.

1.1.3 Global Airline Industry

The airline industry plays an important role in the global economy. It serves the leisure/tourism industry, the manufacturing industry, logistics and other sectors. It is experiencing high levels of business demand (IATA, 2014). Despite this growth, profitability has remained elusive and marginal and is one of the many contradictions within the industry which has experienced only four periods of profitability; 1963-1968, 1975-1978, 1987-88 and 1995-2000 over the past five decades (Doganis, 2006).

Several factors have been cited for the overall profitability problems of the industry. The cyclical nature of the industry, demand for the product is derived, that is, it is dependent on demand for related activities (for e.g. holidays, business). The product is perishable and demand varies by season, day of the week, and time of day. High fixed costs relative to variable costs make volume crucial (Taneja, 2010).

Deregulation and liberalization in the airline industry especially in Europe and the United States America, has transformed competition and led to the emergence of a variety of new entrants into the airline industry. In Africa, the industry is experiencing some cautious privatization and some liberalization. The industry

operates in a high risk environment. It has been a target of terrorist attacks such as high jacks and also unpredictable adverse weather conditions among others. Operating in such environment makes the safety and security of every passenger airline very critical (Belobaba, Odoni and Barnhart, 2009). The airline industry is also characterized by a high degree of government intervention, especially for international air routes. One of the motivations behind the government intervention is the safety of passengers (Heracleous, Wirtz and Pangarkar, 2006).

Each airline employs different strategies in trying to respond to changes in their operating environments. Southwest Airlines is a passenger carrier operating in the domestic market of United States. According to Gittel (2005), Southwest responds to dynamic market changes by focusing on cost-cutting measures such as reducing employee wages and benefits, but at the same time focusing on valuable employee relationships. It also employs creative ways of reducing passenger fares. Singapore International Airlines (SIA) has managed to build a brand name associated with service excellence by focusing on cost-effective service provision. Heracleous et al. (2006) argues SIA has been able to achieve the excellence through a 'five pillar' activity system. The pillars are;- service design and development, innovation, profit and cost consciousness, staff development and diversification strategy. Kenya Airways has many processes in place that guide its daily operations (Kenya Airways notices, 2010). According to the airlines website, the processes are integrated through an IT platform called Sabre. It proposes that the integration was meant to address changing market dynamics, increase speed to resolve customer complaints, improve cross-departmental optimization and also control operational complexity.

1.1.4 Airlines Industry in Kenya

The airlines industry in Kenya is one of the sectors of the nation's infrastructure. The sector promotes economic activities that involve transportation of passengers and cargo. Kenya Civil Aviation Authority (KCAA) (2013) has recorded sixty three (63) international airlines operating to and from Kenya of which, 9 (14%) are locally registered airlines while 54 (86%) are foreign registered airlines.

To illustrate the market share in terms of passengers, one international route is considered, i.e. the Nairobi – London Heathrow route. A leading one has 24% market share in terms of passengers (Kenya Airports Authority (KAA), 2013/2014) in a market that is growing (International Air Transport Association (IATA) Economics, 2014).

The airline industry in Kenya operates in a competitive environment. To remain competitive, high productivity is key (Stevenson, 2005).

1.2 Research Problem

It has been reported that long-term business success and profitability is directly related to the strength and quality of any business processes. This influence is said to be achieved through cost and quality. The effectiveness of the process also affects the ability of an organization to respond to the risks that it faces. Processes drive the creation of goods and services. Application of process element of TQM to organizations operations will influence quality performance, which entails safety, on-time and customer satisfaction.

The focus on safety, speed, in-flight service attributes, labor issues, unpredictability imposed by weather and rapidly shifting demand amid distinctive regulatory constraints are among the many challenges faced in the daily running of the airline. At the same

time, issues such as route structures, excess capacity, pricing, and yield management compete with operations for the airlines' attention. Other issues include the nature of the business, the diversity of culture of passengers being handled and service providers at international stations. The airline industry may optimize on productivity and customer satisfaction and apply process management in an environment in which cultural dynamism is at play.

Studies undertaken have examined other aspects of the industry other than the effective processes and its effect on operational performance. Awori (2009) studied the factors affecting liberalization of air transport in Kenya, Irandu (2010) looked at “open skies” in relation to East African airlines and Nderitu (2011) examined cost strategies adopted by airlines in Kenya. Further studies (Oxford Economics, 2011) examined what economic value air transport brings to Kenya. A Study by Ekaterina (2012) focuses on the element of customer service quality in an airline. A study by Fang-Yuang (2004) did study process perspective in airline industry in Taiwan. Few studies are reported on process aspects in East Africa and especially not in Kenya. The socio-economic and cultural context is different and therefore the proposition that process can influence airline performance but such as influence either the socio-economic aspect, few studies have considered this.

This study focuses on the operation route of quality-profit link. The key dilemma is whether to adopt process based approach or to focus on the human capital infrastructure in the airlines industry in Kenya. Thus, the question to get answers for is; does process element of TQM have influence on operational performance in the airline sector?

1.3 Research Objectives

To answer the above research question, the following specific objectives are to be achieved;

- i. To determine the effectiveness of processes in airlines in Kenya
- ii. To determine the relationship between process effectiveness and operational performance in the airline sector in Kenya
- iii. To determine the effect of environmental instability on the relationship between process management and operational performance.

1.4 Value of the Study

The information from this study will be useful in clarifying issues of management decisions, resource allocation and prioritization in the airline industry. Scholars will also benefit in terms of the contribution to the general body of knowledge in the broad area of Quality and Total Quality Management, more specifically on the influence of process management on operational performance of the airline industry in Kenya.

The outcomes of the study can also be used to inform the organizational practices for better operational results even for institutions which are not within the airline industry. Travel agents, the Kenya Airports Authority, Kenya Civil Aviation Authority and members of the Airline Alliances such as the Skyteam Alliance may benefit.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

In this chapter, the literature is reviewed along three areas namely; process management framework, operational performance and Environmental stability. This literature is summarized and a conceptual framework developed.

2.2 Process Element of TQM

Anttila (2002) in a review paper sought to present an approach that integrates process management to be part of business management. The aim was to ensure a seamless crafting of process management into the overall business management. The methodology used was based on the writer's personal practical experience of over two decades in different kinds of organizations.

Anttila (2002) finds that Process approach is applicable in all kinds of organizations including private, public service providers and non-profit making organizations. The other finding is that the size of the organization does not matter in the application of this approach. Anttilla (2002) suggests the PDCA (Plan-Do-Check-Act) model as appropriate systematic checklist for managing the steps involved in process management. The suggestion is that process management is a comprehensive business management issue that involves the application of multidisciplinary principles and practices.

The study identifies the strain that processes put on the leadership as the major factor during the process approach adoption. Other factors identified are the long-term effort required and the business environmental issues. Anttila (2002) has not explained the

cause and effect relationship to the core service operations objectives which is to meet the flexibility and speed, and quality and cost requirements of the customers. The findings are consistent with the description of process management by Bawden and Zuber-Skerrit (2002) as a facilitative structure for management of organizations and/ or communities.

In their conceptual paper, Bawden and Zuber-Skerrit (2002) suggest that process management guides the flow of events without controlling the outcome in uncertain environments. They further suggest that process management empowers without manipulating people and suggests that process management is less appropriate where there is minimal doubt or minimal risk.

What has not been clarified by Bawden and Zuber-Skerrit (2002) is the basis for suggesting that process management is not appropriate for a situation where there is efficient and cost-effective leadership. They have also not indicated a basis for restriction of process management by the conditions of uncertain environments nor the causative relationships between the core customer service objectives.

The arguments put forward by Bawden and Zuber-Skerrit (2002) are consistent with those of Markus and Stefan (2011) on process effectiveness and measurement. An effective process is one that produces the desired objectives which satisfy the stakeholders. Process effectiveness can be measured by the ratio of value-adding process steps to Non-value adding process steps.

Markus and Stefan (2011) in an empirical study that sought to explore the interaction of process performance measurement and the process owner role, aimed to find the effect of

such interaction on organizational performance. They used sampling method where a sample of Austrian manufacturing companies with at least 50 employees was taken and a multivariate data analysis technique used to test the joint effect of process performance measurement and process ownership on firm performance. Firms were selected randomly and a telephone interviews were conducted.

The findings by Markus and Stefan (2011) indicate that it is not sufficient to implement process performance measurement or the process owner role as a standalone measure in process management because it will not help an organization to achieve high performance.

It further finds that for an organization to benefit from process management, both concepts of process measurement and owner role be implemented together. Other issues are that measuring process performance and taking corrective actions is required for proper operationalization of process management and that measurement involves the monitoring of agreed performance indicators to identify whether a process meets planned targets.

Markus and Stefan (2011) concluded that process performance measurement and process owner role are two important dimensions of business processes. It also concluded that without the concept of process measurement, process owners do not have accurate information about actual process performance, and consequently, they might not be able to continuously improve the processes they are responsible for. The findings were generalized for firms in the manufacturing industry; the airline industry is in the service industry.

2.3 Operational Performance

Operational performance is affected by quality management practices and principles. Core practices such as management support, employee training and employees involvement and customer satisfaction all have significant contributions to operational performance of an organization (Mahour et al, 2011; Erin et al, 2012; Okwiri, 2012).

Mahour, Stefanie and Erick (2011) in their study on Improving Operational and Business performance in the petroleum industry through quality management, investigated empirically the effects of quality management practices on operational and business performance. The methodology used for data collection was a survey instrument and data was collected from managers in the petroleum industry. A multiple regression analysis was conducted to determine the effect of quality management practices on operational and business performance.

The findings indicate that top management support, employee training, and employee involvement are significant variables that explain the variability in operational performance. The findings also show that customer orientation is not a significant predictor of business performance in the petroleum industry. In addition, focus on practices associated with human resource management (employee training and employee involvement) is critical in improving operational performance.

Mahour et al (2011) concludes that management support, employee training and employee's involvement all have significant contributions to operational performance of an organization. It also concludes that top management support is the driving force behind the implementation of quality practices and performance outcomes through employee

training and involvement. These findings are consistent with the Malcolm Baldrige National Quality Awards (MBNQA) Criteria.

What Mahour et al (2011) has not explained is how customer orientation is not a significant predictor of business performance. The sample size used is relatively small. The study was done in the petroleum industry with little emphasis on processes. Furthermore the research study was done in geographical and socio-cultural backgrounds different from that in Kenya.

In a survey by Erin, Brent and Dean (2012) on Frequent Flyer Perceptions and Air Travel Satisfaction sought to provide a consumer perspective on the quality of today's air travel experience. The survey covered over 4000 frequent flyers and it concentrated mainly on passengers and airlines operating in the United States America (USA). 15 airlines based in USA were considered.

Erin et al (2012) finds that passengers continued to register dissatisfaction with air travel experience. The results show that over 53% of the frequent fliers say that air travel has gotten worse for them in the past year. Only 11% thought that air travel got better. Erin et al (2012) also found that passengers consider customer service as the most important factor that influences their choice of carrier. It also found out that on-Time Performance of the airline is one other important factor. They concluded that the number one reason for a bad flight experience is poor customer service by the airline. They also suggest that On-Time arrival significantly contributes to making a positive flight experience. The study is based on airlines and passengers drawn from the USA. The findings and the conclusions are made in different cultural and environmental backgrounds.

In a participatory action-based study, Okwiri (2012) analyzed the effect of easier-to-apply quality management core practices on the operational performance. The aim was to examine the relationship between the different quality management practices' categories and operational performance dimensions. The design used was a survey of a group of employees. Okwiri (2012) proposes that an organization can apply effective process-based quality practices without having to wait for other methods such as socio-behavioral management, employee, customer or supplier based infrastructure practices to be in place.

This paper finds that process-based practices entail process management in order to achieve consistency at work, reduce cost and to manage employee performance. It further finds that improvement in operational performance is related to the activities of top management support and the human resource development and management. It also finds that core practices have a significant influence on operational performance. Okwiri (2012) has analyzed the effect of quality management core practices on operational performance in the IT industry but the same needs to be done in the aviation industry and the proposed paper seeks to fill this gap.

2.4 Environmental Instability

Campbell and Craig (2005) in their book on Organizations and the Business Environment said that every organization exists within its own internal environment and it is influenced by its external environment. They aver that in a stable environment, there is little external change from year to year whereas in unstable situations, the environment may change significantly and often. They argue that unstable environment requires more

frequent internal change than a stable one and that the nature of the external environment will have a strong influence on the effectiveness of the organization's processes. It is proposed by Campbell and Craig (2005) that technological changes, stability of processes, ease of entry and political stability are some of the measures environmental stability.

In a survey paper, Feng, Li, Sun, and Wang (2013) propose a business model for improving performance by testing the relationship between external involvement and operational performance as well as the mediating role of internal environment. Feng et al (2013) finds that external environment have significant effects on operational performance. They also find that internal environment partially mediates this relationship. One of the limitations of this paper is that it did not identify the effect of external environment on the different dimensions of operational performance.

2.5 Summary and Research Gap

The literature reviewed in this chapter is summarized here and the research gap indicated. Process Management is applicable in all kinds of organizations including private, public service providers and non-profit making organizations. Operational Performance affects the overall Business Performance of an organization.

While various research findings exist, there is still a variation in the research designs used whereby most studies were survey designs not providing in depth analysis of a specific airline case. Further, prior studies have been conducted in countries with different socio-cultural and economic status, and do not reflect the situation as it is in Kenya.

Most studies have also covered best practices in the airlines industry without a clear relationship with operational performance in the airlines industry.

The literature review is summarized in table 1 below;

Table 2.1: Summary of Literature Review

Study & Type	Focus and Findings	Gaps
Anttila (2002) A Review Paper	Process approach is applicable in all kinds of organizations. Processes exert pressure on leadership	The cause and effect relationship to between the core service operations objectives has not been explained.
Bawden and Zuber-Skerrit (2002), A Conceptual Paper	Process management guides the flow of events without controlling the outcome in uncertain environments.	The link between process management and cost leadership strategy has not been explained
Markus and Stefan (2011), An Empirical Study	Process performance measurement and process owner role are two important dimensions of business processes.	Research conducted among Austrian manufacturing industries with socio-cultural and geographical environment different from that in Kenya.
Mahour, Stefanie and Erick (2011), A Survey Study	Top management support, employee training, and employee involvement are significant variables in operational performance.	Customer orientation not being a significant predictor of operational performance not explained.
Erin, Brent and Dean (2012), A Survey Paper	Passengers are not satisfied with air travel experience. On-Time arrival significantly contributes to making a positive flight experience.	The study is based on airlines and passengers drawn from the USA. The findings and the conclusions are made in different socio-cultural and environmental backgrounds
Okwiri (2012), A participatory action-based study	Finds that the implementation of quality management core practices, effective process management being one of them, can result in improvement in operational performance.	Analyzed the effect of quality management core practices on operational performance in the IT industry but the same needs to be done in the aviation industry.
Feng, Li, Sun and Wang (2013), A Survey	External environment have significant effects on operational performance. Internal environment partially mediates this relationship.	It did not identify the effect of external environment on the different dimensions of operational performance.

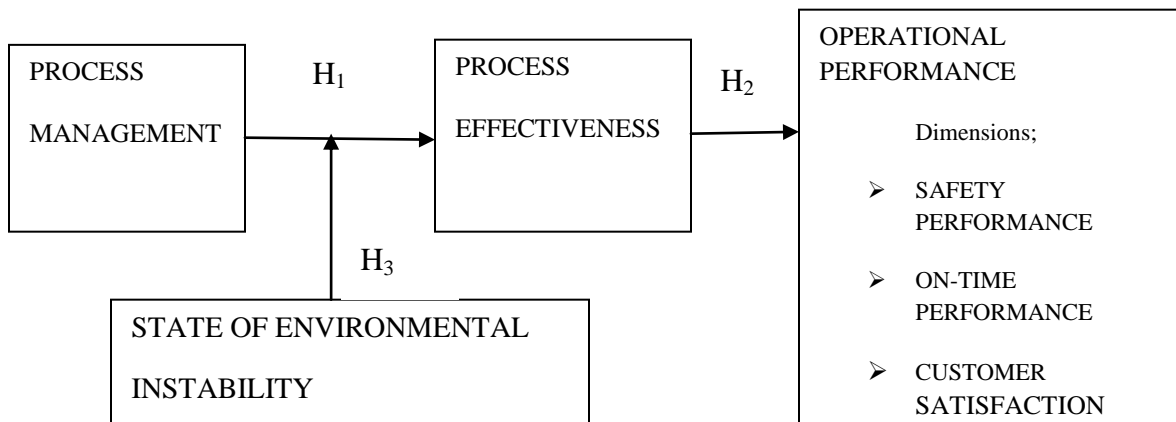
Source: Author (2014)

The issues for examination in the proposed study are to determine the effectiveness of processes, the safety performance, on-time performance, determine the relationship between process effectiveness and operational performance in an airline and finally the determine the mediating effect of environmental stability on the relationship between process management and operational performance.

2.6 The Conceptual Framework

The identified variables and their relationships are conceptualized by the framework below;

Figure 1: Conceptual Framework



Source: Author (2014)

2.7 Hypothesis

The framework can be examined by testing the following hypothesis;-

H₁: Process Management has a positive influence on the Operational Performance of an Airline.

H₂: Process effectiveness has a positive influence on Operational Performance of an Airline.

H₃: Environmental instability has a moderating influence on the relationship between process management and operational performance.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter deals with the research methodology. It considers the research design, the population and sample, data collection and data analysis method.

3.2 Research Design

The study was conducted by using a cross-sectional research design. This design was appropriate because the given study is largely descriptive and seeks to determine the status at a given point in time. Kitoto, (2005) has used this design in a similar study. It was a study of two Kenyan airlines based in Jomo Kenyatta Airport.

3.3 Population Sampling

The target population composed of employees from two main airlines operating from Jomo Kenyatta International Airport.

3.4 Sample Design

Given that there were two groups of respondents targeted, Stratified sampling method was used and a sample 100 employees from one airline and 30 employees from the other one were taken. According to Mugenda and Mugenda (2003), a sample of 30 or more respondents is assumed to be enough for a normal distribution. These employees were drawn from departments concerned with day-to-day operations of each of the airlines i.e. those that particularly impact on safety and on-time performance and customer services.

3.5 Data Collection Method

Perceptual data was obtained using a structured questionnaire which was developed in line with the objectives of the study. The items in the questionnaire have been obtained from existing literature. For the variable of process management, the indicators were derived from Okwiri (2012) and involved seeking the views of employees as regards work consistency, ambiguities, simplification and work output. For the Environmental stability variable, indicators were derived from Doganis (2006), Belobaba et al. (2009) and Heracleaus et al.(2006) and they included; Technological changes, process stability, market entry barriers and political stability. And for the operational performance, the items were derived from the existing records of the two airlines. They consisted of safety performance, on-time performance and customer satisfaction.

The questionnaire was divided in four parts and the first part covered the demographic factors, the second part were the indicators of process orientation. The third part focused on the environment in which the airline industry operates in and its indicators as perceived by the employees. Finally, operational performance as perceived by employees in terms of on-time performance, safety performance and customer experiences. The questionnaire was administered through drop and pick method. E-mail was used to communicate to managers of the different sections where necessary.

3.4 Data Analysis

The data to be collected was largely quantitative, therefore descriptive method of analysis was used to analyze it. The mean and standard deviation were used to represent the variables.

Partial Correlation analysis was applied to achieve the objectives of the study. This is because of the mediating effect of the environmental stability. A partial correlation with environmental stability controlled for was computed at 95% confidence level. Observed changes from zero order correlation to the coefficient when environmental stability controlled for, helped achieve the objectives of the study. The correlation coefficient (R) was used to test the null hypothesis. The results of the study were interpreted as follows; When $R = 0$, then we accept the null hypothesis and when $R \neq 0$ then we reject the null hypothesis. As R tends to -1 or +1, this was interpreted that there is an increasing negative or positive relationship between the variables.

CHAPTER FOUR: RESULTS AND DATA ANALYSIS

4.1 Introduction

In this chapter results are presented and data analyzed in order to present the status of each variable.

4.2 Results

4.2.1 Response Rate

Information was sought from 130 respondents from across 6 departments. A total of 88 respondents returned their questionnaires and this translated to a response rate of 68% on average. This was considered a sufficient response rate to enable the researcher to generalize the findings of the study among the airlines in Kenya. The non-respondents are drawn from across all the levels.

The researcher wanted to know the department where each of the respondents worked. This was meant to assist in ascertaining whether the respondents were suitable to provide relevant information and also to establish whether all the relevant departments were well represented in the study. The findings are presented in Table 4.1 and Figure 4.1 below;

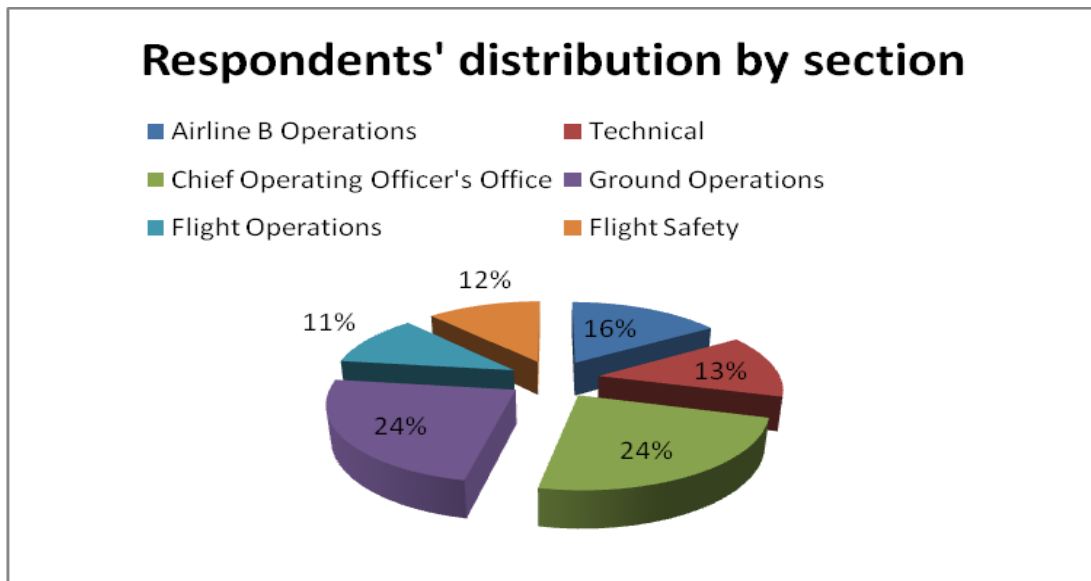
Table 4.1: Respondents received

Department	Size	Questionnaires issued	Questionnaires received	% Response rate
Airline B Operations	12	9	6	67
Technical	547	34	19	56
Chief Operating Officer's Office	278	10	10	100
Ground Operations	934	32	32	100
Flight Operations	1247	41	19	46
Flight Safety	12	4	2	50
Total	3030	130	88	mean 68

Source: Survey Data

From the table above, it is observed that flight operations department had the largest proportion of the respondents across the six departments, with a response rate of 46%. This response rate indicates a low representation compared to the rest of the departments. Figure 4.1 below shows a representation of the respondents by section.

Figure 4.1: Respondents Distribution



Source: Survey Data

The respondents are distributed across six departments. Ground operations department and the Chief operating officer's office had 24% each of the total number of respondents; technical department contributed 13% while flight operations had each 11% of the respondents; flight safety had 12% and Airline B operations department accounted for 16% of the respondents. The findings therefore confirm that each of the departments was adequately represented according to the proportion of the employees. It was also clear that the respondents were drawn from relevant departments that could provide significant responses for this study.

4.2.2 Summary of variable values

Multi-item constructs used to represent variables of process management, process effectiveness, environmental instability and operational performance were aggregated and means and standard deviation determined. The table 4.2, below shows a summary of the results;

Table 4.2: Summary of results

Department		Process management		Environmental instability		Process effectiveness		Ops Performance		90% CI	
	No of Respondents	Mean	std Dev	Mean	std Dev	Mean	std Dev	Mean	std Dev	Lower Bound	Upper bound
Airline B operations	6	4.46	.459	2.54	.401	4.22	.404	4.15	.219	3.230	4.451
Technical	19	3.38	.774	2.61	.689	4.35	.919	3.69	.638	2.264	4.756
Chief Operating Officer's office	10	3.13	.959	2.25	.500	3.97	1.232	3.79	.563	1.939	4.621
Ground operations	32	3.90	.375	1.55	.668	4.24	.408	4.48	.472	2.746	4.334
Flight operations	19	3.54	.843	2.70	.743	4.16	.560	3.60	.587	2.373	4.626
Safety	2	3.25	.707	3.00	.354	3.00	1.414	3.54	.657	1.908	4.492

Source: Survey Data

The table indicates that the highest aggregate mean on process management was registered in airline B's operations department. Chief Operating Officer's office scored the lowest mean of 3.13. On environmental instability, all the departments had low mean scores which were below 3.00 except safety department. The results displayed in the table above also showed a high aggregate mean on process effectiveness by all the departments except safety which registered a mean score of 3.00.

Ground operations and airline B operations had mean scores of 4.48 and 4.15 respectively on operational performance variable. This implies that these departments have the highest concern to operational performance issues.

A correlation matrix in Table 4.3 presents linkages and co-variations between the variables.

Table 4.3: Correlation Matrix

		Process management	Environmental instability	Process effectiveness	Operational performance
Process management	Pearson corr	1	-.145	.362**	.513**
	Sig.(2 tailed)	.	.178	.001	.000
Environmental instability	Pearson corr	-.145	1	-.154	-.514**
	Sig.(2 tailed)	.178	.	.151	.000
Process effectiveness	Pearson corr	.362**	-.154	1	.082
	Sig.(2 tailed)	.001	.151	.	.449
Operational performance	Pearson corr	.513**	-.514**	.082	1
	Sig.(2 tailed)	.000	.000	.449	.

Note: **. Correlation is significant at the 0.01 level (2-tailed).

The data presented in the table above indicated that there was a significant positive correlation between process management and operational performance of 0.514.

This implied that when process management improved, operational performance also improved. The study also confirmed that there was a positive relationship between process management and process effectiveness of 0.362. This meant that better and effective process management leads to some increase in process effectiveness. Process

management and environmental instability have a weak negative correlation of -0.145 and the results show that process effectiveness had a weak inverse relationship of -0.154 with environmental instability. The table indicates a strong negative relationship between environmental instability and operational performance with a value of -0.514. The relationship between process effectiveness and operational performance is not explained as the shown by a low value of 0.082.

CHAPTER FIVE: FINDINGS, DISCUSSION AND CONCLUSION

5.1 Introduction

This chapter presents statistical tests of results presented in chapter 4 so as to determine statistical significance of the results. Hypotheses are tested and conclusions drawn.

5.2 Findings

5.2.1 Effectiveness of Processes

One of the objectives of this study was to determine the effectiveness of processes of airlines in Kenya. The respondents were provided with three statements concerning effectiveness of processes and were required to indicate the extents to which they agreed or disagreed with the statements using a scale of 1-5 where 1 represented extremely disagree and 5 extremely agree. The responses were subjected to descriptive statistics and the aggregate mean and standard deviation generated as shown in Table 5.1 below;

Table 5.1: Process effectiveness mean and std deviation

	N	Mean	Std. Deviation
Process_effectiveness	88	4.1856	.73040

Source: Survey data

The null hypothesis; H_0 : that the coefficient β_1 is not significantly different from the mean value of process effectiveness was tested using the formula;

$$Z = \frac{\mu - 3.0}{\sigma}$$

Where μ - is the aggregate mean of process effectiveness(**4.19**)

σ – is the aggregate std deviation of process effectiveness (**0.730**)

Z – is the score calculated

The results showed a Z-score value of 1.6164. This was compared with the table value at 95% confidence level, which was (0.9750). The table Z value was observed to be lower than the calculated Z value. This implies that the coefficient β_1 is actually significantly different from the mean value of process effectiveness; therefore the null hypothesis above is rejected and the alternative hypothesis accepted.

5.2.2 The Relationship between Process Management and Operational Performance

The hypothesis H_1 : Process Management has a positive influence on the Operational Performance of an Airline. The null hypothesis tested was H_0 : coefficient B is not significantly greater than zero. To test the significance of data presented, a regression analysis was done and the results presented in Table 5.2, and Table 5.3 below;

Table 5.2: Regression analysis for process effectiveness and operational performance

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.353	.303		7.773	.000
Process_management	.451	.081	.513	5.547	.000

a. Dependent Variable: Ops_performance

Source: Survey Data

Table 5.3: Relationship between the variables

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.513 ^a	.264	.255	.56583	.264	30.775	1	86	.000

a. Predictors: (Constant), Process_management

Source: Survey Data

The results showed that there is a strong positive relationship between process management and operational performance, R (0.513). From the table 5.3 above, the effect size, estimated by R^2 is 0.264 (about 26%). This implies that approximately 26% of the variation in operational performance is explained or predicted by the variation in process management ($R^2 = .264$, sig = 0.000). The influence of process management on operational performance was also significant (B = 0.451, t = 5.547, sig = 0.000).

The results actually confirmed that process management significantly influences operational performance. The relationship can be explained by the equation:

$Y = 2.353 + 0.451x_1$ where; Y is operational performance and x_1 is process management.

Therefore the null hypothesis H_0 : that the coefficient B is not significantly greater than zero was rejected and the alternative hypothesis accepted.

5.2.3 The Relationship between Process Effectiveness and Operational Performance

To show the relationship between the two variables above, the null hypothesis H_0 : coefficient B is not significantly greater than zero was tested. A regression analysis was done and the results shown in Table 5.4 and Table 5.5 below;

Table 5.4: Regression analysis for process effectiveness and operational performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.691	.410		9.008	.000
	Process_effectiveness	.073	.096	.082	.761	.449

a. Dependent Variable: Ops_performance

Source: Survey Data

Table 5.5: Relationship between the two variables

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.082 ^a	.007	-.005	.65714	.007	.579	1	86	.449

a. Predictors: (Constant), Process_effectiveness

Source: Survey Data

The results show that there is a weak positive relationship between process effectiveness and operational performance, R (0.082). From the table 5.5 above, the effect size, estimated by R^2 is 0.007. This implies that only 0.7% variation in operational performance is explained or predicted by the variation in process effectiveness ($R^2 = .007$, sig = 0.449). The influence of process effectiveness on operational performance was found not to be significant (B = 0.073, t = 0.761, sig = 0.449).

The results indicate that process effectiveness does not significantly influence operational performance. The relationship can be explained by the equation:

$Y = 3.691 + 0.073x_1$ where; Y is operational performance and x_1 is process effectiveness. Therefore the null hypothesis H_0 : that the coefficient B is not significantly greater than zero was accepted and the alternative rejected.

5.2.4 Effect of Environmental instability on Operational Performance

The effect of environmental instability was determined by testing the null hypothesis; H_0 : Environmental instability has no effect on operational performance. To test significance of data presented regression analysis was done and is presented in Table 5.6 and 5.7 below;

Table 5.6: Relationship between environmental instability and ops performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.514 ^a	.264	.256	.56552

a. Predictors: (Constant), Environmental_instability

Source :survey data

Table 5.7: Coefficient of the variable

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.905	.174		28.221	.000
	Environmental_instability	-.411	.074	-.514	-5.559	.000

a. Dependent Variable: Ops_performance

Source: Survey Data

The results show that there is a strong inverse relationship between environmental instability and operational performance, $R (0.514)$. From the tables above, the effect size, estimated by R^2 is 0.264 (26%). This means that approximately 26% of the variation in operational performance can be explained or predicted by the changes in environmental instability ($R^2 = 0.264$, $\text{sig} = 0.000$). The influence of unstable environment on operational performance was also significant ($B = -0.411$, $t = -5.559$, $\text{sig} = 0.000$).

The results therefore confirm that environmental instability significantly influences operational performance albeit inversely. The relationship can be explained by the equation:

$$Y = 4.905 - 0.411x_2,$$

Where; Y is operational performance and x_2 is environmental instability.

Therefore the Null hypothesis H_0 : that environmental instability does not influence operational performance was rejected and the alternative accepted.

5.2.5 Environmental instability and process management interactions

The hypothesis H_3 : Environmental stability has a moderating influence on the relationship between process management and operational performance was tested to establish the relationship between the variables above. The null hypothesis H_0 : That B coefficients are not significantly greater than zero was tested in order to establish the significance of the data presented.

Moderation was tested by the introduction of an interaction term to the equation containing the process management variable, process effectiveness variable and the moderating variable which was environmental instability. The regression equation;

$$Y = K + B_1X_1 + B_2X_2 + B_p (X_1.X_2).$$

Where; Y is Process effectiveness, X₁ is Process management and X₂ is environmental instability and B_p is the product of X₁ and X₂ was used to test the significance of the coefficients B. Regression analysis was done and the results shown in Table 5.8 and 5.9, below;

Table 5.8: Environmental instability and process management interactions

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.152	.445		7.090	.000
	Process_management	.340	.100	.347	3.413	.001
	Environmental_instability	-.093	.090	-.104	-1.026	.308
2	(Constant)	5.390	1.572		3.428	.001
	Process_management	-.248	.409	-.254	-.608	.545
	Environmental_instability	-1.032	.640	-1.160	-1.613	.110
	Interaction term	.249	.168	1.146	1.483	.142

a. Dependent Variable: Process_effectiveness

Source: survey data

Table 5.9: R squared change

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.376 ^a	.141	.121	.68468	.141	7.003	2	85	.002
2	.404 ^b	.163	.133	.67990	.022	2.199	1	84	.142

a. Predictors: (Constant), Process_management, Environmental_instability

b. Predictors: (Constant), Process_management, Environmental_instability, Interaction term

Source: survey Data

From the tables above, results show that the interaction term in the equation was not significantly greater than zero. This is an indication that environmental instability does not moderate in the relationship between Process management and process effectiveness. However, there is an indication that the introduction of the interaction term enables the explained variation (R^2 changes from 0.141 to 0.163) meaning that the interaction between process management and environmental instability positively enhances variation in process effectiveness. The equation that predicts the interaction was given by;

$$Y = 5.390 - 0.248x_1 - 1.032x_2 + 0.249(x_1 \cdot x_2).$$

Therefore, the null hypothesis H_0 : That B coefficients are not significantly greater than zero is rejected and the alternative hypothesis accepted.

5.3 Discussion

The purpose of this study was to establish the effect of the process element of total quality management and operational performance of airlines in Kenya. The study had three objectives to achieve: To determine the effectiveness of processes in airlines in Kenya; determine the relationship between process effectiveness and operational performance in the airline sector in Kenya and to determine the effect of environmental instability on the relationship between process management and operational performance.

Process effectiveness among airlines in Kenya is manifested in three main ways. Processes that used in the airlines assist significantly in simplifying the work activities; processes play a very a role in removing work related ambiguities and are important in ensuring that there is some level or degree of work consistency. These findings are consistent with the Malcolm Baldrige National Quality Awards (MBNQA) Criteria.

There exists a positive correlation between processes used by the airlines and the ability of processes to simplify work; processes used and the work being dependent on processes; the ability of processes to remove work related ambiguities and work being dependent on processes. This finding is consistent with Okwiri (2012) and Oakland (2004). The relationship between employees of different departments within an airline directly affects the external customers. This finding further confirms the findings by Russel and Taylor (2011). It is also clear that safety measures taken by an airline influences to a large extent the decision of the customer to fly with the airline.

It was also clear that compliance to regulations is one way of enhancing safety in the airlines, consistent with the findings by (Belobaba, Odoni and Barnhart, 2009 and Heracleous, Wirtz and Pangarkar, 2006).

On the third variable which was to determine the effect of environmental instability on the relationship between process effectiveness and operational performance, the statistical tests performed showed that there was some effect. This finding is in agreement with those of Anttila (20002) that processes are only relevant in unstable environments.

5.4 Conclusion

The study established that process effectiveness among airlines in Kenya is manifested in three main ways. The first way through which this is manifested is through simplification of work. The study revealed that the processes that are prevalent in the airlines assist significantly in simplifying the work activities carried out by the airlines. It was further observed that the processes that are used by the airlines play a very significant role in

removing work related ambiguities. This confirms that processes are important in ensuring that all ambiguities in performance of various tasks are removed or eliminated.

A further conclusion is drawn that the processes used by airlines are important in ensuring that there is some level or degree of consistency in the way work is carried out. The study confirmed that without the processes it is possible to have a lot of inconsistencies in the way work activities are carried out in the airlines.

On the relationship between process effectiveness and operational performance in the airline sector in Kenya, it was established that there exist a positive correlation between processes used by the airlines and the ability of processes to influence operational performance. The environment in the aviation market is found to be highly unstable. A further conclusion is that, instability on its own will have a negative effect on operational performance, but when it interacts with process management, it may enable a positive relationship between process management and operational performance.

5.5 Recommendations

The study revealed that processes assist in simplifying work activities, therefore is need for the managers in the airline industry to adopt process management as one of the ways to simplify work. Processes play a significant role in removing work related ambiguities as well as in ensuring that there is some level or degree of work consistency. Safety is an important factor that affects customer satisfaction; therefore it will be important for managers in the airline industry to insist on compliance to regulation as one of the main ways of enhancing safety. Finally, managers can use the process element of TQM to improve their operational performance.

5.5.1 Suggestions for further research

Due to the limitation of time and resources, this study did not cover all the airlines operating in Kenya. Therefore there is need to carry out a survey that will involve all the airlines that are currently operating in Kenya. This will assist in providing a wider picture of the situation in the entire airline industry. There will be need to conduct a comparative study that will compare process element of total quality management and operational performance of airlines in Kenya and firms in other industries in Kenya. This will be important in ascertaining similarities and differences that may exist.

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APPENDIX 1: QUESTIONNAIRE

This is a study concerning an important management topic. You have experience that can be useful in the area of management research. It is being conducted for academic purpose only. The data or information given will be treated with confidentiality and the results will be analyzed and reported in summary. You are not required to give your name or any form of personal identification.

DEMOGRAPHIC FACTORS:

Department.....
 Position/title.....
 Ref. No.....

Please indicate the extent to which you agree or disagree with the following statements by ticking the appropriate answer.

		Extremely disagree	Somewhat disagree	Do not know	Somewhat agree	Extremely agree
1	In our organization, processes help achieve work consistency.					
2	Processes reduce work ambiguities.					
3	Processes make work simpler.					
4	In our organization, work is considered to be dependent on processes.					
5	In our organization, we improve output by changing the processes.					
6	In our organization, processes and systems are considered to be more important than people issues.					
7	In our organization, we measure how effective a process is.					

Please indicate your perception of the following about the aviation business market by ticking the appropriate box;

1. Technological changes;

Not at all Somewhat infrequent I do not know
Somewhat frequent Very frequent

2. Processes used are;-

Mature/ stable Somewhat stable Do not know
Somewhat unstable Fast evolving

3. Ease of others to enter the market;-

Very difficult Somewhat difficult Do not know
Somewhat easy Very easy

4. Sensitive to Political turbulence;-

None at all Somewhat insensitive Do not know
Somewhat sensitive Very sensitive

To what extent do you perceive the following statements to be true;-

1. Our organization is focused on a strong operational safety culture.

Extremely untrue Somewhat untrue I do not know
Somewhat true Very true

2. We consider safety as the responsibility of the safety department in our organization.

Extremely untrue Somewhat untrue I do not know
Somewhat true Very true

3. In our organization, safety is enhanced through strict compliance of regulation.

Extremely untrue Somewhat untrue I do not know
Somewhat true Very true

4. In our organization, we consider Safety has an important factor that affects our customers' decision to fly with us.

Extremely untrue Somewhat untrue I do not know
Somewhat true Very true

5. Our services march the expectations of our customers.

Extremely untrue Somewhat untrue I do not know
Somewhat true Very true

6. In our organization, every employee is empowered to take immediate action to satisfy a guest's wish or to resolve a problem

Extremely untrue Somewhat untrue I do not know
Somewhat true Very true

7. Our organization has minimal baggage tampered with per thousand passengers carried.

Extremely untrue Somewhat untrue I do not know
Somewhat true Very true

8. Our organization responds to customer complaints quickly and satisfactorily.

Extremely untrue Somewhat untrue I do not know
Somewhat true Very true

9. We consider employees from other departments as important internal customers.

Extremely untrue Somewhat untrue I do not know
Somewhat true Very true

10. Our relationship with employees from other departments has an effect on our external customers.

Extremely untrue Somewhat untrue I do not know
 Somewhat true Very true

		Extremely Untrue	Somewhat untrue	I do not know	Somewhat true	Extremely true
1	Our airline maintains its flight schedule as published.					
2	Our airline meets the set on-time performance compared to industry standard.					
3	The processes in our organization affect our on-time performance.					
4	Our on-time performance is affected by factors beyond the control of our organization.					

End.

Thank you for taking time to participate in this interview. You will have contributed to the development of effective management practice.