



**SAINT MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES**

**QUALITY AND SAFETY MANAGEMENT PRACTICES IN
PRIVATE AVIATION IN ETHIOPIA**

**BY
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ADDIS ABABA ETHIOPIA**

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LIST OF ABBREVIATIONS/ACRONYMS

ALARP	As Low as Reasonably Practicable
AU	African Union
EASA	European Aviation Safety Agency
ECAA	Ethiopian Civil Aviation Authority
ECARAS	Ethiopian Civil Aviation Authority Rules & Standards
EASA	European Aviation Safety Agency
GASP	Global Aviation Safety Plan
ICAO	International Civil Aviation Organization
IATA	International Air Transport Association
ISM Code	International Safety Management <i>Code</i>
ISO	International Standards Organization
IOSA	IATA Operational Safety Audit
KCAA	Kenyan Civil Aviation
LOSA	Line Operation Safety Audit
NAA	National Aviation Authority
NTSB	National Transportation Safety Board of United States
OEM	Original Equipment Manufacturer
QMS	Quality Management System
SACAA	South African Civil Aviation Authority
SMS	Safety Management System
SPSS	Statistical Package for Social Sciences
SSP	State Safety Program
UN	United Nation

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ABSTRACT

The aviation industry is one of the most Quality & Safety demanding industry sector where a single malfunction or fault may lead to the fatal and catastrophic accident of an aircraft that may cause loss of life and property. This also might be a good cause for a company to bankrupt due to loss of market share and reliability.

The objective of this study is to assess the Quality Management System & Safety Management System Practices in the Private Air Operators in Ethiopia.

Descriptive analysis method is applied for conducting the research; the study used primary data sources and also secondary data sources. The Primary data collection instruments that were used are questionnaires and observation. Secondary data are from different literatures, books and journals.

The required primary data are collected using questionnaires with total of fifty questions out of which forty five are closed questions and five are open ended questions.

The study targeted 51 management and senior level employees out of the total population of 248 of Private Air Operators in Ethiopia and 43 responses were received for analysis.

The collected quantitative data are analyzed using descriptive statistics from SPSS.

The Findings or results indicate that there are some drawbacks in implementing QMS & SMS in the Private Air Operators in Ethiopia.

The Private Operators are not encouraged by the government so that to invest and engage in the aviation industry and this in turn has an impact in developing QMS & SMS; it will be more successful when Private Operators and government work together.

The Air Operators should have willing to adopt QMS & SMS but instead it is adopted because of the enforcement made by Regulatory Bodies and Customer requirement, the Air Operators lack confidence on the positive outcomes to be gained by practicing QMS & SMS.

It is recommendable that the government to play a major role in supporting the private aviation sector and Private Air Operators to fully adopt and implement QMS & SMS by considering it as an asset for the future benefit of the organization.

Keywords: *Private Aviation in Ethiopia, Quality Management System, Safety Management System, Air Operators, QMS & SMS Practice in Private Aviation*

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The Regulatory mandatory requirement and competitive aviation market has made Aviation organizations to turn their attention to product & service Quality and Safety as higher priority.

As per ECAA requirement indicated in the ECARASs, Service Providers engaged in the aviation industry are required to establish and implement both Quality Management System and Safety Management System.

The intention behind is for monitoring the compliance with regulatory requirements rules and standards, company policy, procedures and operator's manual system, and any other standards specified by the operator, or the Authority, to ensure safe operations with airworthy aircraft. (ECAA ⁵, 2 013).

Quality and Safety are to be addressed and managed in all areas of the Air operator activities as it involves in every sector of the operation such as flight Operation, Maintenance of Aircraft, Customer/Passenger handling, Ground Handling and Cargo Handling activities etc.

1.2. Statement of the problem

The aim of this research is to assess the current Quality and Safety practice of Private Air Operators in Ethiopia and to investigate the level of the practices.

The problem, as basis for this research, lies in the broader context of the main research objective that is Quality & Safety Management Practices in Private Aviation in Ethiopia.

Air operator of commercial aviation depends on many parts of the system coming together to best serve the flying public, Safety and Quality are the highest priority in the Aviation Industry at present. The organizational decision makers should highly consider Quality & Safety as a strategic requirement.

As from my observation and from the literatures, book and journals reviewed the following are the issues of concern in the practices of Quality Management System (QMS) and Safety Management System (SMS) in the aviation industry:

- Some of the Private Operators are forced to adopt QMS& SMS due to external pressure of Regulatory and Customer requirement, not Quality & Safety itself.

- Lack of strong Management commitment such as accountability for QMS & SMS, investing and ensuring resources availability and its sufficiency, direct participation in implementing , maintaining and to regularly review the effectiveness of the QMS & SMS.
- The Private Operators are not competent enough in the market and this has indirect impact on practicing QMS and SMS as production and protection are imbalance

1.3 Research Questions

The following fundamental questions are expected to be answered by the findings of the Study:

- What are the challenges in the implementation of both QMS & SMS in the Private Aviation?
- What changes have brought the practicing of both QMS& SMS in the organization Management & employee culture in the Private Aviation?

1.4 Objective of the Study

1.3.1 General objective

The general objective of this research is to assess the Quality Management System and Safety Management System practices in Private aviation in Ethiopia. That is to assess the compliance of Private Operators with regulatory requirements and with the internal policy and procedure of the organization and with customer requirements as well.

1.3.2 Specific objectives

On the basis of the general objective, this research has assessed the following specific objectives:

- To assess and evaluate the existing Quality Management System and Safety Management System practices in the Private Air Operators in Ethiopia.
- To identify the problems in the existing Quality Management System and Safety Management System practices in the Private Air Operators in Ethiopia.
- To draw lessons and suggestions on the areas of improvement

1.5 Definitions of terms

Airworthy aircraft- The aircraft must conform to its type design certificate (TC). Conformity to type design is considered attained when the aircraft configuration and the components installed are consistent with the drawings, specifications, and other data that are part of the TC, which includes any supplemental type certificate (STC) or other approved alterations.

Accidents – an unplanned event or series of events that results in death, injury, occupational

illness, damage or loss of equipment or property, or damage to the environment.

Aircraft Operator – Person or Organization owning one or more Aircraft that are bought owned, leased and used for charter, private business, scheduled or non-scheduled operations.

Air Operator Certificate (AOC)-A certificate authorizing an operator to carry out specified commercial air transport operations.

Commercial Air Transport Operation- An aircraft operation involving the public transport of Passengers, cargo or mail for remuneration or hire

Hazard -Any existing condition that can lead to injury, illness, or death to people; damage to or loss of a system, equipment, or property; or damage to the environment.

A hazard is a condition that is a prerequisite to an accident or incident.

Incident – a near miss episode with minor consequences that could have resulted in greater loss. An unplanned event that could have resulted in an accident, or did result in minor damage, and indicates the existence of, though may not define a hazard or hazardous condition.

Private Operators- Aircraft operators owned by private companies involving in the transport of Passengers, cargo for remuneration or hire.

Safety–state in which the possibility of harm to persons or of property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and safety risk management.–As defined in the International Civil Aviation Organization (ICAO) *Safety Management Manual*.

Safety management system –a comprehensive **management system** designed to manage **safety** elements. It includes policy, objectives, plans, procedures, organization, responsibilities and other measures. It is a planned, documented and verifiable method of managing hazards and associated risks.

1.6 Significance of the study

The study could have the following significance:

- The findings of the study may assist operators to improve the practices of Quality and Safety Management System in their organization.
- It can give some high light for further study on Quality Management System and Safety Management System practices.

1.7 Scope of the study

The research is conducted in Private Air Operators in Ethiopia and the National/Flag carrier Ethiopian Airlines which is owned by FDRE is excluded from this study.

There are nine Private operators and most of them are not highly engaged in the industry, as domestic air transportation is not yet highly active in Ethiopia.

The type of operations they engaged are charter flight (Passenger and Cargo), Domestic Flight, unscheduled flights and others such as medical evacuation, aerial survey, photography etc.

The scope of the study is on Quality and Safety Management Practices focusing on the problems and challenges faced by private Air Operators in practicing QMS &SMS.

CHAPTER TWO: LITERATURE REVIEW

2.1 Private Aviation in Ethiopia

The Private aviation was established again in Ethiopia twenty years back and there are now nine Private operators which are Five to twenty years of age since establishment.

Private Aviation Operators are involved in charter, taxi services and are usually contracted out to exploration and mining companies, the diplomatic community, international Organizations such as United Nations and Non-Governmental Organizations, in some instances for tourists and none of them are engaged in providing scheduled domestic flights, which could be instrumental in improving the country's transportation system.

Aviation cannot be equitably be approached by isolated national legislation as it needs international approach in order to enhance the safety and quality practices of the aviation industry in the country. Accordingly Ethiopia has become one of the founding members of the International Civil Aviation Organization (ICAO) which was founded on December 7th, 1944 in Chicago, United States (ICAO, 1944).

2.2 Proclamation for Ethiopian Civil Aviation Authority

ECAA controls and regulates every activity in the Aviation sector in Ethiopia as per the mandate given to ECAA as stated in the Civil Aviation Proclamation.

the 'proclamation for civil aviation' states the desire to consolidate and modernize the aviation laws and to bring them to international standards by strengthening the regulatory, administrative, technical and supervisory capabilities of the Ethiopian Civil Aviation Authority and for better regulation of civil aviation to meet the needs for a safe, secure, regular, efficient and economic civil aviation system; It also emphasizes the need for aviation safety and regulation to be undertaken in compliance with the standards and recommended practices of ICAO and it is obligatory to provide for the promotion and continuous development of civil aviation regulation(ECAA ², 2008).

ECAA evaluates and monitors to ensure that Air Transport Operators provide air transportation to the public with the highest degree of safety. Accordingly the implementation of Quality Management System and Safety Management System by service providers became mandatory. The Implementation started on July 2013 and January 2014 respectively.

Under ECAA Rules and Standards One of the main requirements of the regulation to conduct Air Transport Operations, Private and General Aviation Services is based on Aircraft service life ECAA ³ (2013).

The restriction on aged aircraft is related to the safety of the operation in general and for safety of passengers in particular which will not be compromised. As per the data of accidents, one of the main reasons for airplane accidents is the age of aircraft used for operation.

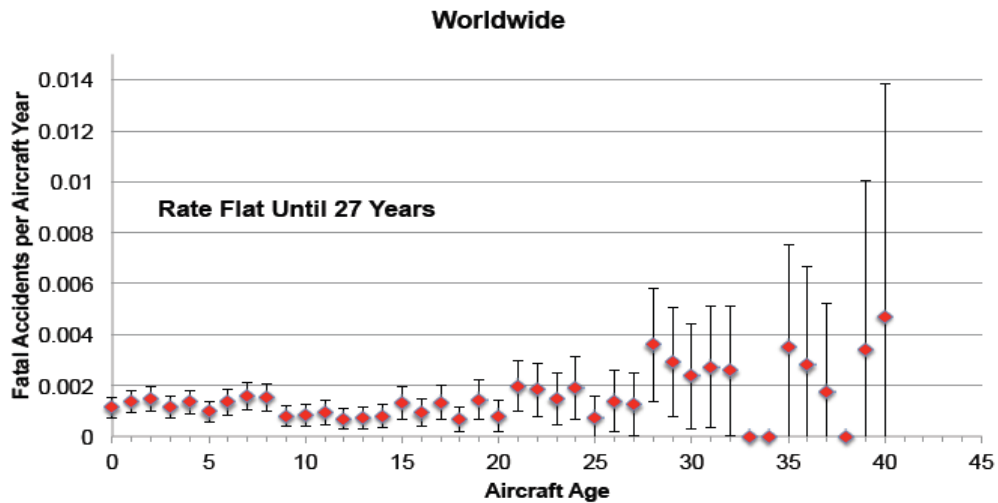


Fig. 1 Fatal Accident Rate vs. Aircraft Age

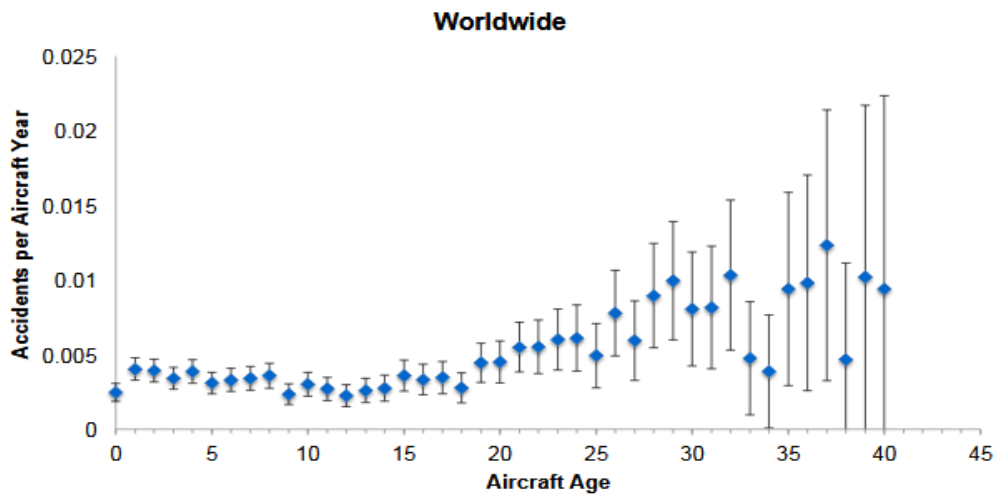


Fig.2 Total Accident Rate vs. Aircraft Age

Source: (John H, 2014)

Accordingly Aircraft are not legible for registration in Ethiopia if it is more than

- 22 years of age since manufactured and to be engaged in passengers transport and
- 25 years of age since manufactured and to be engaged in Cargo transport or an Arial work.(ECAA ³, 2013)

2.3 Air Operator Certification Process and Air Operator Certificate

In order to operate an aircraft an operator must have Air Operator Certificate therefore the candidate Air Operator shall pass through the certification process to acquire Air Operator Certificate.

The certification process is designed to ensure and verify that Prospective Air Operator Certificate (AOC) holders understand and are capable of fulfilling the Regulatory requirements and also the ability of the operator to comply with the ECAA requirements as published in ECARAS and with the applicable international standards (ICAO Annexes & ICAO Documents) pertaining to the operation of aircraft.

There are five phases in the air operator certification process:

1. Pre-application
2. Formal Application
3. Document Evaluation
4. Demonstration and Inspection
5. Certification

In the Document Evaluation (Phase 3) **Quality Assurance Manual and Safety Management manual** are required to be submitted to ECAA for evaluation and during the Demonstration and Inspection (Phase 4) the service provider shall **demonstrate on how to implement the Quality Management System & Safety Management system** (ECAA ⁴, 2013).

2.4 Quality Management System

2.4.1 Quality Management System (QMS) as per ECAA requirement

The contemporary Ethiopian Civil Aviation Rules & Standards (ECARAS) date July 2013 Part 9 (Air Operator Certification) states about the Operator to establish and implement QMS. The aim is that the implementation of QMS should enable the operator to monitor compliance with ECAA requirements, the operations manual, the operator's management exposition and any standards specified by the Operator or the Authority to ensure safe operations and airworthy aircraft.

2.4.2 Quality Management System as per ISO 9001

ISO 9001-2015 incorporates ten clauses and seven principles, the three Clauses of ISO 9001-2015 are on the scope; normative references, Terms and definitions and seven of the clauses are about. Context of the organization, Leadership, Planning, Support of the Operation, Operation, Performance evaluation and Improvements

The seven Principles of ISO 9001-2015 are Customer focus, 2. Leadership, 3. Engagement of people, 4. Process approach, 5. Improvement, 6. Evidence-based decision making, 7. Relationship management (ISO 9001, 2015).

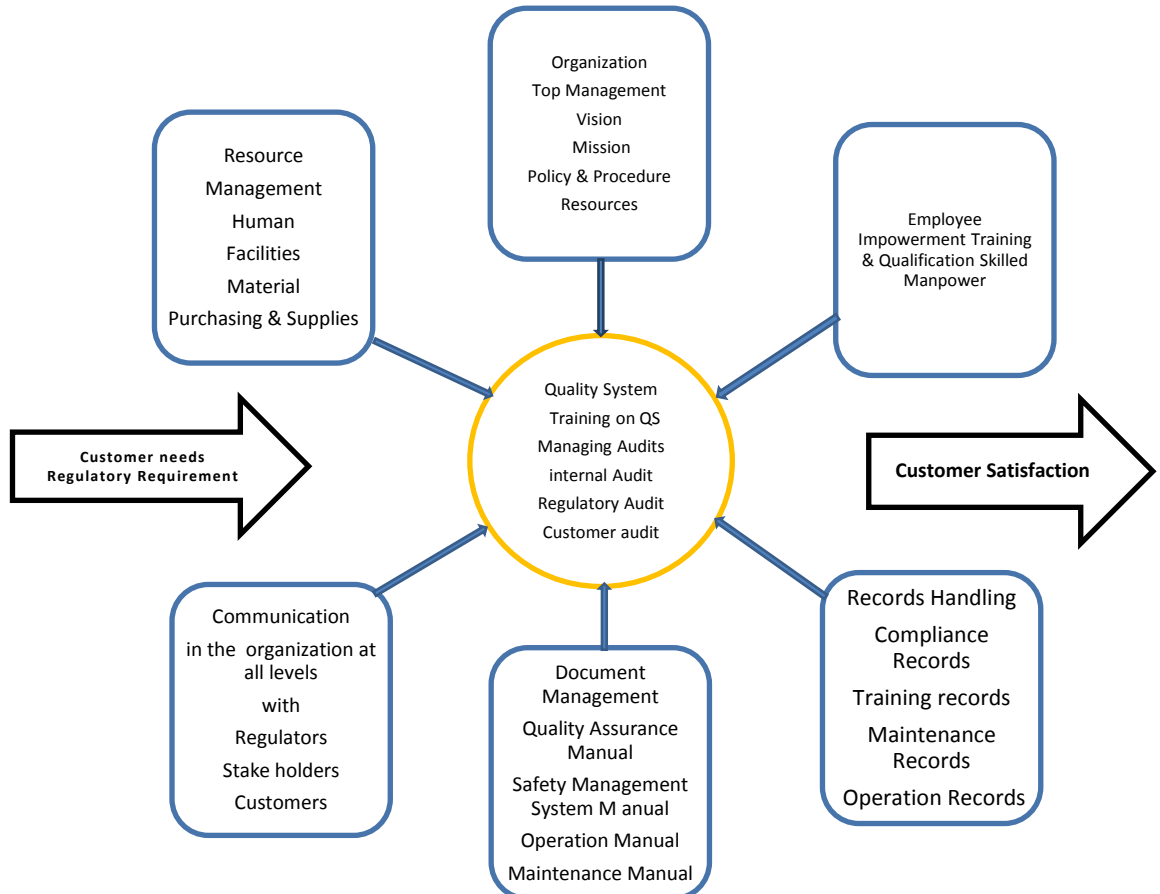
2.4.3 AS9100 Quality Management System for Aerospace Industry

Quality Management System as per the International Aerospace Quality Group (IAQG)

AS9100 is a standard set of requirements for implementing the process of a QMS. It is based on best practices that are recognized world-wide, and tailored to the aerospace industry.

It is developed by the International Aerospace Quality Group (IAQG), AS9100 comprises a set of requirements that reflect time-proven, universally accepted good business practices, the majority of which are mandatory. AS9100C includes all of the ISO 9001 requirements in their entirety plus additional Aerospace Industry specific requirements (ETI Group, 2014).

2.5 Conceptual Framework of Quality Management System



Organization: Top Management shall have Vision, Mission, Policy and commitment to avail the required Resources and to implement and maintain QMS & SMS

Resource: The required resources Human shall be retained as it is the main asset of an organization, and Facilities, Material and tools shall be replenished and managed properly

Employee Training & empowerment: Trainings both theoretical and practical Trainings will improve employee proficiency and empowering employee will enhance performance of the organization.

Records: all records such as Compliance Records, Training records, Maintenance Records and Operation Records are one of the core items that are to be managed by the organization.

Document: all the necessary documents such as Quality Assurance Manual, Safety Management System Manual, Operation Manual and Maintenance Manual etc. shall be reviewed and maintain to the latest version.

Communication: It is very important to have good communication in the organization at all levels and also with Regulators, Stake holders& Customers as it will create a mutual understanding of the organization.

Quality System: It is one of the core processes and the following shall be managed awareness and training on QMS to all employees and management, handling Audits internal Audit, Regulatory Audit and Customer audit.

Regulatory Requirement& Customer needs: Organization shall comply with Regulatory Requirement and Customer needs in order to sustain in the competitive market.

Safety

Safety is the state in which the possibility of harm to persons or of property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and safety risk management (ICAO ,2013) .

The Evolution of Safety as per ICAO Safety Management

- a. **The technical era** — from the early 1900s until the late 1960s. Aviation emerged as a form of mass transportation in which identified safety deficiencies were initially related to technical factors and technological failure

- b. The human factors era** — from the early 1970s until the mid-1990s. In the early 1970s, the frequency of aviation accidents was significantly reduced due to major technological advances and enhancements to safety regulations. Aviation became a safer mode of transportation, and the focus of safety endeavors was extended to include human factors issues including the man/machine interface.
- c. The organizational era** — from the mid-1990s to the present day. During the organizational era safety began to be viewed from a systemic perspective, which was to encompass organizational factors in addition to human and technical factors (ICAO, 2013).

2.6 Safety Management System (SMS)

ICAO Annex 6 describes the requirements for establishing Safety Management Systems (SMS) by service providers/Air Operators operating in accordance with ICAO Annex 6 Operation of Aircraft (ICAO Annex 6, 2010).

Ethiopia as one of the signatory states has followed the standards and recommended practices of ICAO in enforcing the Safety Management System requirement.

Safety Management Systems (SMS) requirements by ECAA

As indicated in ECARAS Part 23 Safety Management Systems (SMS) has statutory basis and this regulation is promulgated under the statutory of Ethiopian Civil Aviation Authority Regulation and standard ECAA ⁶ (2014).

Accordingly service providers shall have in place a safety management system (SMS), as a minimum the SMS shall Identify safety hazards, Ensures that remedial action necessary to maintain an acceptable level of safety is Implemented (ECAA ⁶, 2014).

2.7 Conceptual Framework of Safety Management System (SMS)

The ICAO Framework of Safety Management System (SMS) has the following four components and twelve elements and is accepted by ICAO member states (ICAO, 2013).

Component	Element
1. Safety policy and objectives	1.1 Management commitment and responsibility
	1.2 Safety accountabilities
	1.3 Appointment of key safety personnel
	1.4 Coordination of emergency response planning
	1.5 SMS documentation
2. Safety risk management	2.1 Hazard identification
	2.2 Safety risk assessment and mitigation
3. Safety assurance	3.1 Safety performance monitoring and measurement
	3.2 The management of change
	3.3 Continuous improvement of the SMS
4. Safety promotion	4.1 Training and education
	4.2 Safety communication

Source: (ICAO, 2013)

Regardless of the service provider's size and complexity, all elements of the SMS framework apply. An SMS framework requires specific activities and processes that must be performed by aviation service providers.

2.7.1 Safety risk management

2.7.1.1 Hazard Identification, Methodologies and Prioritization

Hazard identification is a prerequisite to the safety risk management process and Hazards may require categorizations according to the severity/likelihood of their projected consequences. Hazard identification shall be based on a combination of reactive, **proactive and predictive methods** of safety data collection (ICAO, 2013).

2.7.1.2 Safety risk assessment and mitigation

Safety Risk, Safety Risk Probability & Safety Risk Severity

Safety risk is the projected likelihood and severity of the consequence or outcome from an existing hazard or situation. Safety risk probability is the likelihood or frequency that a safety consequence or outcome might occur (ICAO, 2013).

Table 1: Safety Risk Probability

SAFETY RISK PROBABILITY		
<i>Likelihood</i>	<i>Meaning</i>	<i>Value</i>
Frequent	Likely to occur many times (has occurred frequently)	5
Occasional	Likely to occur sometimes (has occurred infrequently)	4
Remote	Unlikely to occur, but possible (has occurred rarely)	3
Improbable	Very unlikely to occur (not known to have occurred)	2
Extremely improbable	Almost inconceivable that the event will occur	1

Source: (ICAO, 2013)

Table 2: Safety Risk Severity

<i>Severity</i>	<i>Meaning</i>	<i>Value</i>
Catastrophic	<ul style="list-style-type: none"> • Equipment destroyed • Multiple deaths 	A
Hazardous	<ul style="list-style-type: none"> • A large reduction in safety margins, physical distress or a workload such that the operators cannot be relied upon to perform their tasks accurately or completely • Serious injury • Major equipment damage 	B
Major	<ul style="list-style-type: none"> • A significant reduction in safety margins, a reduction in the ability of the operators to cope with adverse operating conditions as a result of an increase in workload or as a result of conditions impairing their efficiency • Serious incident • Injury to persons 	C
Minor	<ul style="list-style-type: none"> • Nuisance • Operating limitations • Use of emergency procedures • Minor incident 	D
Negligible	<ul style="list-style-type: none"> • Few consequences 	E

Source: (ICAO, 2013)

Table 3: Safety Risk Assessment matrix

RISK PROBABILITY	RISK SEVERITY				
	Catastrophic	Hazardous	Major	Minor	Negligible
	A	B	C	D	E
Frequent 5	5A	5B	5C	5D	5E
Occasional 4	4A	4B	4C	4D	4E
Remote 3	3A	3B	3C	3D	3E
Improbable 2	2A	2B	2C	2D	2E
Extremely Improbable 1	1A	1B	1C	1D	1E

Source: (ICAO, 2013)

Table 4: Safety Risk Tolerability Matrix

Tolerability description	Assessed risk index	Suggested criteria
Intolerable region	5A, 5B, 5C, 4A, 4B, 3A	Unacceptable under the existing circumstances
Tolerable region	5D, 5E, 4C, 4D, 4E, 3B, 3C, 3D, 2A, 2B, 2C, 1A	Acceptable based on risk mitigation. It may require management decision.
Acceptable region	3E, 2D, 2E, 1B, 1C, 1D, 1E	Acceptable

Source: (ICAO, 2013)

Risk Management

Safety risk management is another key component of a safety management system that encompasses the assessment and mitigation of safety risks. The objective of safety risk management is to assess the risks associated with identified hazards and develop and implement effective and appropriate mitigations. Safety risks are conceptually assessed as acceptable, tolerable or intolerable (ICAO, 2013).

Safety Culture the main part of SMS

Safety Culture refers to the extent to which every individual and every group of the organization is aware of the risks and unknown hazards induced by its activities; is continuously behaving so as to preserve and enhance safety; is willing and able to

adapt itself when facing safety issues; is willing to communicate safety issues; and consistently evaluates safety related behavior.

The essence of safety culture resides in the people's beliefs about the importance of safety; including what they think their co-workers, supervisors and leaders really believe about safety's priority. It is demonstrated through attitudes, accepted norms and behaviors. It's about how things work and the way things are done.

Safety culture, as defined by Reason (1997) rests on five components, namely:

1. **Informed culture** -The organization generates significant data on incidents and accidents, which is complemented by safety audits and surveys on safety environment;
2. **Reporting culture** – Employees are encouraged to report their errors or near misses, and take part in surveys on safety culture;
3. **Just culture** – The establishment of a trust relationship between employees and employer where reporting mistakes and incidents is encouraged and employees know they will be treated fairly if they make any unintentional mistake;
4. **Flexible culture** -The organization shows that it is able to adapt its practices when warranted;
5. **Learning culture** - The organization learns from incident reports, safety audits and internally-reported issues, resulting in improved safety.

James Reason sums it up neatly by stating that a safe culture is an informed culture and this, in turn, depends upon creating an effective reporting culture that is underpinned by a just culture in which the line between acceptable and unacceptable behavior is clearly drawn and understood

The five maturity levels of Safety Culture:

1. Level 1 (Pathological): Who cares as long as we're not caught
2. Level 2 (Reactive): Safety is important; we do a lot every time we have an accident
3. Level 3 (Calculative): We have systems in place to manage all hazards
4. Level 4 (Proactive): We work on the problems that we still find
5. Level 5 (Generative): Safety is how we do business around here

As Stated by Robert L. Sumwalt Developing Safety Culture in an organization in a continuous basis is very essential in Aviation and Aerospace Safety, it stated the point that safety culture is not something an organization either has or it doesn't.

The pathway to safety culture is a journey, not a destination, and “is a product of continual striving” and mentioned that the following attributes are found to be indicators of an organization with a healthy focus on safety.

Top-Level Management Commitment, Personal Accountability and Empowerment

Problem Identification and Resolution, Risk Awareness and Work Planning, Promoting Open Reporting, A Culture of Continuous Learning, Just Culture, Questioning Attitude

An organization “fostering strong safety culture would encourage employees to cultivate a questioning attitude and a rigorous and prudent approach to all aspects of their jobs and to set up necessary open communication between line workers and middle and upper management” (Robert L. Sumwalt).

As indicated by Richard Yeun an effective SMS can produce the following benefits: a reduction of incidents and accidents, reducing direct and indirect costs, reducing insurance premiums, an improvement of staff productivity, safety recognition by the travelling public, Proof of diligence in the event of legal or regulatory safety investigations (Richard,2014).

2.8 Summary of Literature Review on QMS and SMS

2.8.1 Relationship between Quality Management System and Safety Management System

2.8.1.1 Both SMS and QMS achieve the overall organization goals, and in particular, the organization's safety goals through a management system, (i.e., policies, objectives, organizational structure, procedures, monitoring and the improvements of organizational management.)

2.8.1.2 QMS provides basic assurance for the management of quality by means of a process method-PDCA. The SMS provides further assurance for operation quality by identifying, preventing and controlling the safety hazards existing in an operation.

2.8.1.3 QMS cannot, by itself, as proposed by quality view, “assure safety”. Because a QMS does not contain the function of identifying (and therefore controlling) safety risks which are inevitable during operations complying

with QMS, it cannot positively prevent accidents beforehand and assure safety. It is the integration of SMS into QMS that enhances the possibility of achieving safety goals significantly.

2.8.1.4 The relationship between SMS and QMS is synergistic rather than antagonistic. Establishing a complementary relationship between SMS and QMS leads to the complementary contributions of each system to the attainment of the organization's safety goals.

2.8.1.5 QMS provides a structured and standardized approach for processes and procedures, enabling the SMS to identify hazards and keep safety risks under control. The relationship therefore allows the SMS to operate as planned and make improvements when a deviation occurred.(ICAO ,2010)

2.8.1.6 QMS and SMS are quite substantial as both require planning, performance monitoring, communication and the participation of all employees.

2.8.2 Quality Management System and Safety Management System Similarities

QMS and SMS have a number of similar processes; both systems depend on measuring and monitoring, both strive for continual improvement and both use a number of the same tools, such as audits. QMS focuses on internal quality assurance procedures; an SMS expands on this by advocating a risk-based approach to the structure, responsibilities, processes and procedures of an organization.

It has been argued that safety is an unspoken and unwritten quality expectation of customers and the two cannot be separated. Having a quality product or service as defined by the ISO standards, may still not be equivalent to having a safe product or service (Richard, 2015).

2.8.3 Quality Management System and Safety Management System key Points of Difference

QMS is structured on ISO 9000 Quality Management and quality assurance standards, which are based on identifying and correcting instances of non-conformance or non-compliance whereas SMS is structured on ISO 31000-2009 Risk Management *principles and Guidelines* and ICAO Doc 9859 Safety Management Systems Manual, which encourage organizations to identify, assess and control all types of risk that could affect the safety of the operation.

SMS aims to minimize all safety risks using a number of proactive methods.

The Quality Management System does not investigate incidents or accidents for risk assessment. Quality Management System audit output of a process only for variance, and makes adjustments. SMS investigates events, looking for contributing factors from all influencing sources (Flight Safety, 2010).

2.8.4 SMS approach in the aspects of an organization

SMS takes a holistic approach to safety for all aspects of an organization, establishing an SMS involves creating interconnected systems throughout an organization. Safety will ideally develop as an integral component of the culture of staff and will influence everyone's daily conduct. SMS is a way of doing business that places safety at the core of an organization's commercial practices (CAA of New Zealand, 2012).

2.9 Summary of Problem on Practicing QMS and SMS from reviewed literatures

As specified in the reviewed literatures there are different types of problems that are faced during the practice of QMS and SMS. Some of the problems identified during the literature review are listed below:

2.9.1 Problems in practicing Quality Management System

2.9.1.1 Resistance in implementing QMS

As stated by ETI Group the greatest resource a company has its people, inevitably there will be resistance to changes when implementing and maintaining QMS. Resistance has many faces including denial, lack of motivation and questioning of the motivation behind the decision to implement QMS. (ETI Group, 2014).

2.9.1.2 Myths of Quality Assurance (QA)

As stated by John P. Portelli there are Misconceptions on QA as it is a matter of policing and controlling , assuming that Quality is a fixed, monolithic entity; not flexible, one size fits all and expecting that if QA procedures in place then quality is assured (John P, 2015).

2.9.1.3 Misconceptions about AS9100

As explained by Mark Hammar there are misconceptions and misunderstandings about AS9100 some of the common misunderstandings are assuming that as if it is only for big aerospace suppliers, assuming as it need to document everything ,expecting that the quality department “owns” it, expecting AS9100 to be perfect right away and assuming as It costs a lot to implement

He also indicated that QMS development can have some challenging times. One of the first of those is overcoming the misconception of thinking (Mark, 2018).

2.9.2 Critical Factors for QMS planning &Implementation

Lack of top management commitment to support and maintain QMS, Inability to provide the required resources needed for QMS, Lack of qualified personnel required for successful implementation and maintenance of QMS, Lack of training necessary for implementing QMS, Lack of motivation among management and employees to improve processes, Lack of measurement and monitoring of internal and external customer satisfaction ,Lack of employee involvement and commitment to QMS development and Implementation. (Manish, 2 016).

2.9.3 Success Factors and Barriers to Successful QMS Implementation

As stated by Manish, An organization with a desire to implement QMS must adopt all the necessary requirements specified in the standard and He indicated that many research studies have found implementation of QMS to be challenging. Organizations might have different motivations for implementing QMS like achieving certifications.

The key barriers faced were lack of complete understanding of the purpose of QMS requirements, lack of commitment from the top management, lack of belief in what QMS can achieve, inability to provide sufficient resources for training and implementation of QMS and employee resistance to accept change in processes. Many researchers have suggested lack of top management support and commitment as one of the most common barriers. This is regarded as a major barrier that also leads to poor attitude towards QMS among employees Several factors that hindered the success of QMS implementation like lack of understanding of QMS requirements among employees, partial fulfillment of QMS requirements, lack of interest in QMS from other functional areas and Failure to assign proper responsibilities and authorities related QMS maintenance (Manish, 2016).

2.9.4 Problems and or Challenge in practicing SMS

The difficulties and problems in implementing SMS can originate from the specific cultural features of an organization or an occupation. The cultural features can become either an enabler or a barrier for implementation of the safety management system.

A true cultural change does not occur if only a majority of people accept the culture. Survey results indicate percentages need to approach ninety to one hundred percent of people that must accept the SMS culture to achieve success. And this is the goal that every airline surveyed is trying to reach (Jerry, 2014).

No company can manage implementing the safety management system properly using only its own resources. Co-operation of companies is needed and regulatory agencies should provide support for co-operation (Jouni, 2017).

It is highly doubtful that the rest of the organization will buy-in SMS without real understanding and commitment from the top. (Kathleen, 2009)

CHAPTER THREE: METHODOLOGY OF THE STUDY

3.1. Introduction

This part of the study focuses on the research design and methodology employed, how the data obtained and the results analyzed. It covers research design, target population, sampling technique and sample size, types of data, data source and data collection instruments, procedures of data collection, methods of data analysis and ethical considerations to use while undertaking the study.

3.2. Study Design

The study had used Descriptive research method to obtain information relating to the research and it is found suitable for collecting, analyzing quantitative data.

Descriptive Analysis provide summaries about the sample and the measures together with graphics, it form the basis for analysis of quantitative data. The descriptive research design is useful to describe existing situations (Bryman, 2012)

Descriptive Statistics (frequency and percentage) was adopted for analysis purpose and Microsoft Office Excel was also used to generate data presented using tables, charts, and graphs. Statistical Package for Social Science (SPSS) v20.0 was utilized to analyze and present the data through table and graph.

3.3. Source of data

Both primary and secondary data are collected; accordingly the primary data is collected from the private aviation Company Senior Management, Managers, Supervisors, Inspectors, Quality& Safety Officers and employees using questionnaire. The selection is based on the experience that they may have better information and actual participation in relation to the study.

The secondary sources of data are from the information which has been collected in the past that are found from the research journals, Published research articles, books and reports.

3.4. Inclusion Criteria

Members/Employees of the private aviation those with more than five years' service in the aviation and who are at supervisory, Managerial levels, Safety and Quality managers are included in the study.

3.5. Exclusion Criteria

Members/Employees of the private aviation that that are less than five years' service in the aviation are excluded from the study.

3.6 Population, Sample Size and Sampling Techniques

The airline business requires skilled and experienced employees for better understanding of the nature of the industry and for better productivity (Abel, 2017). According to ECAA’s Air Transport and Planning Directorate, there are nine private air operators in the Private Aviation Sector with total number of two hundred forty seven employees out of which fifty one are senior employees & Managerial Staffs as stated in the table below.

Table 5: Population, Sample Size

Item	A.	B.	C.	D.	E.
1	Abyssinian Flight Services P.L.C	101	66	11	41 %
2	Amibara General Aviation Services	10	6	4	4 %
3	Aquarius Aviation P.L.C	14	7	5	5.5 %
4	East African Aviation P.L.C	14	7	5	5.5 %
5	National Airways P.L.C	54	32	7	22 %
6	Salini Construction S.P.A	12	6	4	5 %
7	Trans-nation Airways P.L.C	16	8	6	6.5 %
8	Walya Airways	14	8	4	5.5 %
9	Zemen Flying Services P.L.C	12	8	5	5 %
Total		247	148	51	100 %

- A.** Private Air Operators AOC holders arranged alphabetically
- B.** Total Number of employees
- C.** Number of Employees with more than 5 Years’ service
- D.** Number of Senior employees & Managerial Staffs
- E.** Percentage

Stratified sampling method is used for this study, as it is known Stratified sampling is a Probability sampling technique wherein the researcher divides the entire population into groups. The Functional areas that satisfy the sampling requirement such as Flight Operations, Maintenance, Human resource & Administration, Quality and Safety departments are the strata.

In order the research to be more feasible it is very important to get valuable information, Accordingly the researcher has identified that the target population for this research to be senior employees that are at supervisory positions, these are supervisors, Inspectors, Team Leaders that have long term experience in the aviation, employees involved in Quality and Safety Management and those at Managerial Positions such as Head of Section, Head of Departments, Directors, Managing Directors or CEOs.

Accordingly, the target populations for this research are employees from the nine Private Air operators that fulfill the criteria and the total numbers of employees that satisfy the criteria are 51 which are 21% of the total population of 247. Out of the fifty one sample population 35 % from Flight Operations, 42 % from Maintenance, 9 % from administration, 9 % from Quality and 5 % from Safety department are sampled.

3.6.1 Sample size

The populations of target respondents are to be 51 employees and it consists of Flight Operations, Maintenance, Safety, Quality, Human Resource, supervisors, and Management staff.

Simplified formula (Singh, Ajay S and Masuku, Micah B Nov 2014) is used to determine sample size. This formula is used to calculate the sample sizes as shown below.

$$n = N / [1 + N (e)^2]$$

Where, n is the sample size for the study, N is total population of the study and e is Error tolerance or level of precision. Given, N = 51 and e = 5%

By applying this formula; we get:

$$n = 51 / [1 + 51 (0.05)^2]$$

$$n = 45.2$$

n ~ 45 accordingly the is the sample size for the study will be 45

3.6.2 Methods of Data collection

The aim of this research was to examine the Quality & Safety Management Practices in Private Aviation in Ethiopia, to analyze the result of the study both primary and secondary data are collected .Primary data are collected through structured questionnaire and the interview from the key informant's and Secondary data are gathered from previous studies such as books, and journal articles in line with the objective of the study.

3.7. Tools of data collection

The data collection instruments used to collect data from the selected respondents were questionnaires and interviews. Selection of this tool was guided by the nature of data to be collected, time available and objectives of the study.

the total number of survey items designed to reflect Quality management practices and Safety Management System practices were 20 and 30 respectively.

Each item on the survey was measured using a 5 point likert scale from strongly disagree (1) to strongly agree (5) and in addition there were 5 open ended questionnaires used as a substitute for the interview

3.8. Procedures of data collection

To obtain valid and reliable data for the study, both primary and secondary data are collected.

to collect the primary data questionnaires were distributed in person in hardcopy to the employees at head office of each Private operator that have participated in the study.

The data collection was made carefully by taking the necessary time that is convenient for respondents to give response. In addition to the questionnaire, open ended questions were used to get the opinion of respondent so that to complement the information obtained through questionnaire.

3.9. Methods of data analysis

Descriptive analysis method is used on the collection, analysis, and interpretation of both quantitative and qualitative data in this research.

Questionnaires were formulated with an aim to get detail information about the objectives of this study. All the relevant data that are collected from the questionnaire are reviewed and analyzed.

Data obtained from respondents are coded and entered into the Statistical Package for Social Sciences (SPSS) program software and analyzed using descriptive statistics.

The responses of the open ended questions are evaluated in comparison with the response of the closed questions. Based on the result of the data analysis, discussion, conclusions and recommendations are made.

3.10 Ethical Considerations

The Thesis title was accepted by S.M.U and the study was conducted in Private Aviation in Ethiopia after obtaining the permission from the owners companies and or the top management. After having approval from the concerning bodies the required data are collected keeping confidentialities and security of personal suggestions and no personal name were used in the data collection format.

CHAPTER FOUR: FINDINGS & DISCUSSION

The following fundamental questions are expected to be answered by the findings of the Study:

- How is the commitment of the top management in implementation of both QMS & SMS in the Private Aviation?
- What changes have brought the practicing of both QMS& SMS in the organization Management & employee culture in the Private Aviation?

4.1. Results/Findings of the Study

4.1.1. Questionnaire Response Rate

Fifty five Questionnaires are distributed; forty three filled out Questionnaires are received, As Duncan D states that a response rate of 50% is normally acceptable for analyses and reporting (Duncan D., 2008).the response rate for this study was 78% that was valid for analyses and reporting.

Table 6: Response Rate

number of distributed questionnaire	number of questionnaire response received	Response rate
55	43	78%

4.1.2. Data Reliability

The questionnaires were adopted (IRISH Aviation Authority , 2011) and the internal consistency of each questions were checked using Cronbach's alpha from the SPSS software .Cronbach's alpha is a measure of internal consistency, It shows how closely related are a set of items as a group (UCLA, 2019). In practice, Cronbach's alpha ranges from 0 to 1 with a value of at least 0.70 has been suggested to indicate adequate internal consistency (Tsang, S., Royse, C. F., & Terkawi, A. S., 2017). Based on the above information, the data were checked and the result indicates adequate internal consistency.

Table 7: Reliability of data

Item	Category	No. of Items	Cronbach's Alpha
1	Practices of Quality Management System (QMS)	15	0.906
2	Practices of Safety Management System (SMS)	25	0.929

4.1.3. General Information

Part 1 of the questionnaire was on general information and it was structured so that the respondents to fill the Core Business area, Functional area of the Organization and year of experience of the respondent.

4.1.3.1. Core Business Area

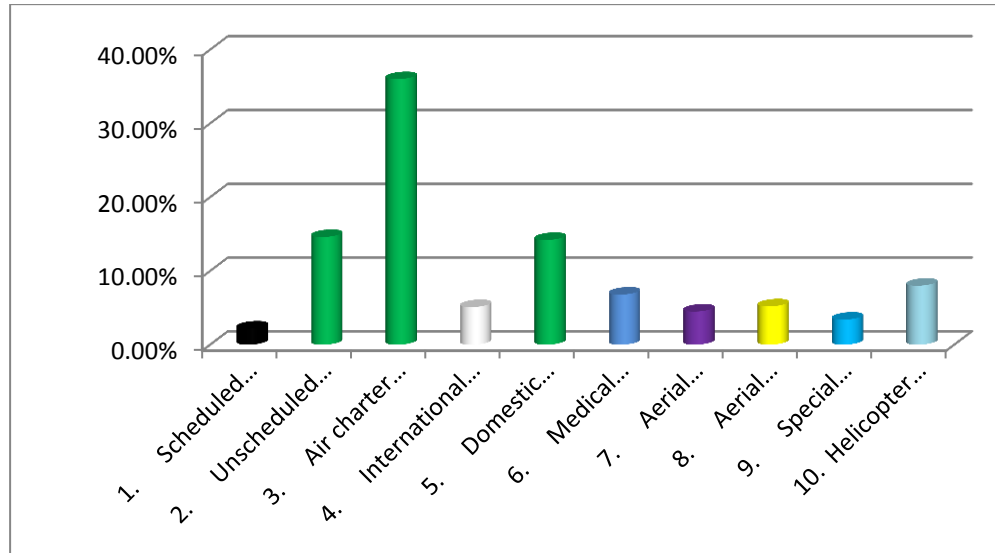


Fig.3 Core business area

Source: Primary Data (2020)

As indicated in figure 4 above the graph shows the main Core Business Areas of the Private Operators, this are Air charter, unscheduled flight & domestic flight

4.1.3.2. Functional Area

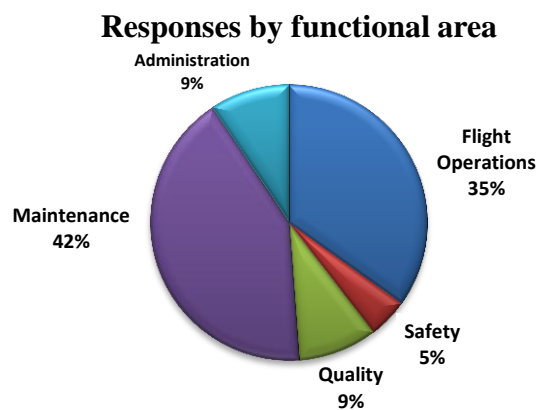


Fig.4 Functional area

Source: Primary Data (2020)

Fig.4 indicates the functional area of the respondents based on their professions and it shows the proportion of the staff who have participated or responded on the questionnaire and interview

4.1.3.3. Year of experience

Table 8: Year of experience

Year of experience	No of respondents
5-10 years	10
above 10 years	33
Total	43

Source: Primary Data (2020)

The majority of the respondents have served in the aviation sectors for 10 years and above thus the possibility of getting relevant information is expected from the participant as per their experience in the aviation.

4.1.3.4. Age range

Table 9: Age range

Age range	No of respondents
18-29	2
30-39	11
40-49	2
50-59	4
≥ 60	24
Total	43

Source: Primary Data (2020)

4.1.3.5. Gender of Respondents

Table 10: Gender of Respondents

Gender of the Respondents	Percent
Female	4.7
Male	95.3
Total	100

Source: Primary Data (2020)

From the total population of the respondents, 95.3% are male and 4.7% are female.

4.1.4 Findings on Practices QMS & SMS

Table 11: Practices of QMS

1. How do you explain QMS in your Organization	Responses	
	N	<p>SIGNIFICANCE OF QMS</p> <p>61% 9% 30%</p> <p>■ a ■ b ■ c ■ d ■ e</p>
a. The system had no significance at all.	0	
b. The negative effect of the system overrides the significance of the system.	0	
c. The system is significant but it can't be practically implemented in aviation	4	
d. The system create improved environment in different aspects of the service	13	
e. The system is a necessity question for the wellbeing of the organization	26	
Total	43	
2. How do you explain the awareness of the staff about QMS?	Responses	
	N	<p>AWARENESS OF THE STAFF ABOUT QMS</p> <p>69% 10% 21%</p> <p>■ a ■ b ■ c ■ d ■ e</p>
a. Not aware at all	0	
b. Only less than 50% of the staff has general information about the system concept	0	
c. Only less than 50% of the staff has general information about the system concept	4	
d. 50 % of the staff have general information	9	
e. 50 % and more of the staff have detailed information	30	
Total	43	
3. How do you explain the participation of professionals in QMS?	Responses	
	N	<p>PARTICIPATION IN QMS</p> <p>5% 23% 72%</p> <p>■ a ■ b ■ c ■ d</p>
a Not participated at all	2	
b. Less than 50 % of the staff participated	10	
c. 50 % and more of the staff participated	31	
d. Do not know	0	
Total	43	
4. How do you explain the training of employees on QMS?	Responses	
	N	<p>TRAINING ON QMS</p> <p>5% 10% 23% 62%</p> <p>■ a ■ b ■ c ■ d ■ e</p>
a. Not provided	2	
b. Only for case team leader	4	
c. Less than 50% of the staff provided	9	
d.50% and more of the staff provided	24	
e. Don't know	0	
Total	39	
5. How do you explain the training of managers on QMS?	Responses	
	N	<p>TRAINING ON QMS</p> <p>6% 26% 68%</p> <p>■ a ■ b ■ c ■ d</p>
a. Not provided	2	
b. Less than 50% of the staff provided	9	
c. 50% and more of the staff provided	24	
d. Don't know	0	
Total	39	

Summary of Findings in Practice of Quality Management System

Importance of QMS: 91% agree that the Quality Management System create improved environment in different aspects of the service and agree that the system is a necessity question for the wellbeing of the organization and 9% indicate that The system is significant but it can't be practically implemented in aviation

Awareness of staff on QMS: 72% agree that fifty percent and more of the staff have detailed information and 23% agree that fifty percent of the staff have general information and 5% say only less than fifty percent of the staff has general information about the system concept.

Staff participation in QMS: 72% agree that 50 % and more of the staff are participating in QMS and 23% agree that less than 50 % of the staff is participating QMS and 5% did not participated in QMS.

QMS Training for employees and for Managers: 62% agree that 50% and more of the staff are provided training on QMS and 23% agree that less than 50% of the staff are provided training on QMS and 2 % say that QMS training is not provided.

68% agree that 50% and more of the Managers are provided training on QMS, 32% agree that Less than 50% of the Managers provided training on QMS, and 2 % say that QMS training is not provided.

The result indicates that QMS is important for the wellbeing of an organization, some of the staff had general information about the system concept of QMS, employees were not fully participated in QMS and QMS training was not given to all employees and to all Managers.

Table 12: Practices of SMS

1. How do you explain SMS in your Organization		Responses	
	N	<p>SIGNIFICANCE OF SMS</p> <p>77% 5% 18%</p> <p>a b c d e</p>	
a. The system had no significance at all.	0		
b. The negative effect of the system overrides the significance of the system.	0		
c. The system is significant but it can't be practically implemented in aviation	2		
d. The system create improved environment in different aspects of the service	8		
e. The system is a necessity question for the wellbeing of the organization	33		
Total		43	
2. How do you explain the awareness of the staff about SMS?		Responses	
	N	<p>AWARENESS OF STAFF ABOUT SMS</p> <p>75% 9% 16%</p> <p>a b c d</p>	
a. Not aware at all	0		
b. Only less than 50% of the staff has general information about the system concept	4		
c. 50 % of the staff have general information	7		
d. 50 % and more of the staff have detailed information	32		
Total		43	
3. How do you explain the participation of professionals in SMS?		Responses	
	N	<p>PARTICIPATION IN SMS</p> <p>7% 25% 68%</p> <p>a b c d</p>	
a. Not participated at all.	0		
b. Less than 50 % of the staff participated	10		
c. 50 % and more of the staff participated	28		
d. Don't know	3		
Total		41	
4. How do you explain the training of employees on SMS?		Responses	
	N	<p>TRAINING ON SMS</p> <p>14% 9% 16% 61%</p> <p>a b c d e</p>	
a. Not provided	0		
b. Only for case team leader	4		
c. Less than 50% of the staff provided	7		
d. 50% and more of the staff provided	26		
e. Don't know	6		
Total		43	
5. How do you explain the training of managers on SMS?		Responses	
	N	<p>TRAINING ON SMS</p> <p>5% 18% 77%</p> <p>a b c</p>	
a. Not provided	2		
b. Less than 50% of the staff provided	7		
c. 50% and more of the staff provided	30		
Total		39	

Summary of findings in Practice of Safety Management System

Importance of SMS: 95% agree that the system create improved environment in different aspects of the service and agree that the system is a necessity question for the wellbeing of the organization and 5 % say that the system is significant but it can't be practically implemented in aviation.

Awareness of staff on SMS: 75% say that 50 % and more of the staff have detailed information about SMS and 16% agree that 50% of the staff have general information and 9% say that only less than 50% of the staff has general information about the system concept.

Staff participation in SMS, 68% say that professionals are participating in SMS and 25% say that Less than 50 % of the professionals are participating in SMS and 7% do not know.

SMS Training for employees: 61% agree that 50% and more of the staff are provided training on SMS 16% agree that less than 50% of the staff provided training on SMS, 14 % say they don't know and 9% response indicates that the SMS Training is provided only for case team leader.

SMS Training for Managers: 77% agree that 50% and more of the staff are provided training on SMS and 18% agree that Less than 50% of the staff is provided training on SMS and 5% say not provided.

The result indicates that SMS is important for the wellbeing of an organization, the staffs have awareness on SMS, few professionals are participated in SMS and training on SMS training was given to some of the employees and managers.

4.1.5. Findings on Practices of QMS in the organization

Items of the questionnaire are categorized according to their themes these are QMS & management, Employee involvement, Customer focus, Periodic Management Review and Training

To assess the TOP Management commitment, respondents were provided with three questions indicated in the table below

Table 13: QMS & Management

QMS & MANAGEMENT		Strongly disagree	Disagree	No Opinion	Agree	Strongly Agree	Total
1. There is a lack of understanding of the purpose and benefits of QMS	Freq.	15	19	9	-	-	43
	%	34.9	44.2	20.9	-	-	100
2. Lack of top management commitment to implement QMS	Freq.	15	16	3	7	2	43
	%	34.9	37.2	7	16.3	4.7	100
3. No sufficient support from the top management to implement QMS	Freq.	17	12	-	12	2	43
	%	39.5	27.9	-	27.9	4.7	100

Purpose and benefits of QMS: 79% of respondents agree that there is no lack of understanding of the purpose and benefits of QMS and 21% response indicates that there is a lack of understanding of the purpose and benefits of QMS.

Top management commitment and support: 72% agrees that there is commitment of top management to implement QMS, 21% say that there is lack of top management commitment to implement QMS.

67.4 % agree that there is sufficient support from the top management to implement QMS and 32.6 % stated that there is no sufficient support from the top management to implement QMS.

The result shows that there is no sufficient support from the top management to implement QMS in some of Private Operators, there is lack of top management commitment to implement QMS in some of Private Operators and there is a lack of understanding of the purpose and benefits of QMS.

To assess the employees' involvement, respondents were provided with three questions with respect to employee involvement.

Table 14: Employee Involvement

EMPLOYEE INVOLVEMENT		Strongly disagree	Disagree	No Opinion	Agree	Strongly Agree	Total
4. No employees involvement and empowerment	Freq.	11	16	2	10	2	41
	%	25.6	37.2	4.7	23.3	4.7	95.5
5. Employees resist change to the existing system in the organization	Freq.	11	-	20	40	8	43
	%	25.6	-	46.5	9.3	18.6	100
6. Lack of motivation and reward system	Freq.	11	-	10	18	4	43
	%	25.6	-	23.3	41.9	9.3	100

Employees' involvement and empowerment: 62.8 % disagree on “No employee’s involvement and empowerment”, 28% agree that there is no employee’s involvement and empowerment and 4.7% have no opinion.

Resistance of change: 72.1% disagree on the statement “Employees resist change to the existing system in the organization” and 18.6% agree on the statement “Employees resist change to the existing system in the organization” and 9.3 % have no opinion.

Motivation and reward system: 51.2% agree that there is lack of motivation and reward system, 25.6 % disagree on lack of motivation and reward system and 23.3% have no opinion.

This implies that there is no in-depth involvement and empowerment of employees. and there is resistance of change to the existing system in the organization and there is lack of motivation and reward system in some of Private operators.

The other area of the was on customer handling, cooperation, customer feedback and on customer satisfaction there were five questions which were responded by the respondents

Table 15: Customer Focus

CUSTOMER FOCUS		Strongly disagree	Disagree	No Opinion	Agree	Strongly Agree	Total
7. The organization does not focus on customers	Freq.	19	18	4	-	-	41
	%	44.2	41.9	9.3	-	-	95.4
8. There is a lack of cooperation from customer	Freq.	8	15	20	-	-	43
	%	18.6	34.9	46.5	-	-	100
9. No customer feedback systems	Freq.	6	13	10	14	-	43
	%	14	30.2	23.3	32.6	-	100
10. Customer satisfaction principle not appreciated in the organization	Freq.	17	13	3	10	-	43
	%	39.5	30.2	7	23.3	-	100
11. Lack of measurement and monitoring of internal and external customer satisfaction	Freq.	10	25	2	6	-	43
	%	23.3	58.1	4.6	14	-	43

Focus on customers: 86.1 % disagree on the statement “the organization does not focus on customers” and 9.3% have no Opinion.

Cooperation from customer 53.5% disagrees on the statement “There is a lack of cooperation from customer” and 46.5 % have no opinion.

Customer feedback systems: 44.2% disagrees on the statement “No customer feedback systems” and 32.6 % agree that there is “no customer feedback system” and 23.3 % have no opinion.

Customer satisfaction: 69.7% disagrees on the statement “Customer satisfaction principle not appreciated in the organization”, 23.3% agree that Customer satisfaction principle not appreciated in the organization and 7% have no opinion.

Monitoring customer satisfaction 81.4 % disagrees on the statement “Lack of measurement and monitoring of internal and external customer satisfaction”, 14% agree that there is lack of measurement and monitoring of internal and external customer satisfaction and 4.6% have no opinion.

The result from respondent response shows that organization is focusing on customers and fulfills customer’s requirements, but some of the organizations have no strong customer feedback system, some of the employees are not well-informed about the customer feedback system, customer satisfaction principles are not fully realized and there is no well-established mechanism for measuring and monitoring of internal and external customer satisfaction

There were two questions on management review and record of review results responded by the respondent

Table 16: Periodic Management Review

PERIODIC MANAGEMENT REVIEW		Strongly disagree	Disagree	No Opinion	Agree	Strongly Agree	Total
12. There is a lack of periodic management review	Freq.	10	25	2	6	-	43
	%	23.3	58.1	4.6	14	-	100
13. The organization has a lack of recording of management review results	Freq.	14	19	2	8	-	43
	%	32.6	44.2	4.7	18.6	-	100

Periodic management review: 81.4% disagrees on the statement “There is a lack of periodic management review” and 14% agree that there is a lack of periodic management review and 4.6 % stated as no opinion.

Recording of management review: 76.8% disagrees on the statement “The organization has a lack of recording of management review results and 18.6% agree that the organization has a lack of recording of management review results and 4.7% have no opinion,

This indicates that the management review is carried out periodically on most of the private operators and management review results are recorded periodically.

Respondents were requested to answer two questions on QMS training as indicated in the table

Table 17: Training

TRAINING		Strongly disagree	Disagree	No Opinion	Agree	Strongly Agree	Total
14. lack of training programs relating to Quality Management System	Freq.	8	9	4	20	2	43
	%	18.6	20.9	9.3	46.5	4.7	100
15. The organization trains its employees without specific purposes	Freq.	15	24	2	-	2	43
	%	34.9	55.8	4.7	-	4.7	100

Training programs: 39.5% disagree on the statement that lack of training programs relating to Quality Management System 51.2% agree that there is lack of training programs relating to Quality Management System and 9.3 % have no opinion.

Training of employees: 90.7% disagrees on the point “The organization trains its employees without specific purposes”, 4.7% have no opinion and another 4.7% strongly agrees.

The result shows that the organization trains its employees with specific purposes but there is unavailability of training program relating to Quality Management System.

4.1.6. Findings on Practices of SMS in the organization

Items of the questionnaire are categorized according to their themes these are Safety Policy, Elements of Safety System, Issue of Safety Hazards and Possible future challenges

Table 14: Summary of Findings on Practices of SMS in the organization

Respondents were presented with four questions on safety policy which incorporates awareness of employees on the safety policy, accuracy, applicability of the safety policy and adequate corporate support for implementing and maintaining a positive safety culture.

Table 18: Safety policy

SAFETY POLICY		Strongly disagree	Disagree	No Opinion	Agree	Strongly Agree	Total
1. All employees at all levels are aware of the safety policy statement	Freq.	-	9	-	20	14	43
	%	-	20.9	-	46.5	32.6	100
2. The safety policy statement is an accurate reflection of the company's commitment to safety.	Freq.	-	2	2	23	16	43
	%	-	4.7	4.7	53.4	37.2	100
3. The safety policy statement is applicable to all levels within the organization.	Freq.	2	2	5	20	14	43
	%	4.7	4.7	11.5	46.5	32.6	100
4. There is adequate corporate support for implementing and maintaining a positive safety culture in the organization.	Freq.	-	7	3	41.9	34.9	100
	%	-	16.3	7	41.9	34.9	100

79.1 % agree that all employees at all levels are aware of the safety policy statement and 20.9% disagrees that “All employees at all levels are aware of the safety policy statement”

90.6 % agree that the safety policy statement is an accurate reflection of the company's Commitment to safety, 4.7% disagree and another 4.7% have no opinion.

79.1% agree that the safety policy statement is applicable to all levels within the organization, 9.4% disagree that the safety policy statement is applicable to all levels within the organization and 11.5% have no opinion.

76.8% agree that there is adequate corporate support for implementing and maintaining a positive safety culture in the organization, 16.3% disagree on the adequacy of corporate support for implementing and maintaining a positive safety culture in the organization and 7% have no opinion.

The result shows that safety policy statement is an accurate reflection of the company's commitment to safety ,but the safety policy statement is not entirely communicated to all employees in the organization, the organization management have not given proper attention to the safety policy statement and is not well articulated so that to be applicable to all levels within

the organization and there is no adequate support from the top management for implementing and maintaining a positive safety culture in the organization

Another area that was assessed through the questionnaire was on Elements of Safety that incorporates ten questions such as Safety culture, compliance with regulatory requirements.

Leadership, staff training and communication, which are responded by the respondents

Table 19: Elements of Safety System

ELEMENTS OF SAFETY SYSTEM		Strongly disagree	Disagree	No Opinion	Agree	Strongly Agree	Total
5. There is clear recognition within my organization of the need to develop and foster a good safety culture.	Freq.	-	7	-	12	24	43
	%	-	16.3	-	27.9	55.8	100
6. Safety is everybody's business	Freq.	-	3	-	16	24	43
	%	-	7	-	37.2	55.8	100
7. Compliance with regulatory requirements is viewed as essential in maintaining a good safety culture	Freq.	2	-	-	20	21	43
	%	4.7	-	-	46.5	48.8	100
8. Strong leadership skills are instrumental in promoting a positive safety culture.	Freq.	-	-	-	17	26	43
	%				39.5	60.5	100
9. Staff training is viewed as playing an integral part in fostering a better safety culture.	Freq.	-	-	-	22	21	43
	%	-	-	-	51.2	48.8	100
10. Good communication is an essential mechanism in fostering a better safety culture.	Freq.	-	-	-	15	28	43
	%	-	-	-	34.9	65.1	100
11. The circulation of information is viewed as key in nurturing safety culture.	Freq.	-	-	-	18	25	43
	%	-	-	-	41.9	58.1	43
12. All employees are regularly informed about "lessons learnt" from incidents or near misses.	Freq.	-	6	-	25	12	43
	%	-	14	-	58.1	27.9	100
13. "Lessons learnt" provide a valuable means of strengthening our safety culture.	Freq.	-	-	-	20	23	43
	%	-	-	-	46.5	53.5	100
14. There is a willingness to learn from the experience of other organizations	Freq.	-	2	-	26	15	43
	%	-	4.7	-	60.5	34.8	100

Safety culture: 83.7 % agree that there is clear recognition within the organization of the need to develop and foster a good safety culture and 16.3 % disagree.

93% agree that Safety is everybody's business and 7% disagree. This shows that some of the Employees have lack of awareness on Safety.

Regulatory requirements: 95.3% agree that Compliance with regulatory requirements is viewed as essential in maintaining a good safety culture and 4.7% strongly disagree.

Leadership skills: 100% agree that strong leadership skills are instrumental in promoting a positive safety culture. 100% agree that staff training is viewed as playing an integral part in fostering a better safety culture.

Communication: 100% agree that Good communication is an essential mechanism in fostering a better safety culture.

Circulation of information: 100% agree that the circulation of information is viewed as key in nurturing safety culture.

Lessons learnt: 86% agree that all employees are regularly informed about "lessons learnt" from incidents or near misses and 14% disagree that all employees are regularly informed about "lessons learnt" from incidents or near misses.

100% agree that that "lessons learnt" provide a valuable means of strengthening safety culture. 94.3% agree that there is a willingness to learn from the experience of other organizations and 2% disagree.

The result indicates that some of the employees within the organization have no clear recognition of the need to develop and foster a good safety culture, Compliance with regulatory requirements is critical in maintaining a good safety culture, strong leadership is very important in promoting safety culture, training plays major part in promoting safety culture, communication within the employees and management is crucial in growing safety culture, the circulation of Information from top down and from down to top is a tool for developing safety culture, there is lack of circulation of information or lack of communication within the organization and this will have a negative impact on the organization.

Respondents were presented with eight questions on issues of hazards which includes such as communication of Safety concerns, reporting of safety hazards, identification of safety hazards, and regular update on safety issues.

Table 20: Issue of Hazards

ISSUE OF HAZARDS		Strongly disagree	Disagree	No Opinion	Agree	Strongly Agree	Total
15. Any safety concerns can be communicated to the next level in a non-punitive atmosphere.	Freq.	-	7	2	17	17	43
	%	-	16.3	4.7	39.5	39.5	100
16. Safety concerns once raised are dealt with in a timely and comprehensive manner.	Freq.	-	6	-	23	14	43
	%	-	14	-	53.5	32.6	100
17. There is high awareness in reporting safety hazards	Freq.	-	6	2	25	10	43
	%	-	14	4.7	58.1	23.3	100
18. The identification of hazards plays an integral part in boosting the organization's safety culture.	Freq.	-	-	-	19	24	43
	%	-	-	-	44.2	55.8	100
19. All staff are regularly updated on safety issues by management	Freq.	-	9	-	22	12	43
	%	-	20.9	-	51.2	27.9	100
20. Safety reports are regularly feedback to frontline staff so that everyone learns the lessons.	Freq.	-	5	-	22	16	43
	%	-	11.6	-	51.3	37.1	100
21. Staff at all levels; fully understand the hazards and risks of their own operation.	Freq.	-	7	3	20	12	43
	%	-	16.3	7	46.6	30.1	100
22. Staffs work continuously to identify and overcome threats to safety.	Freq.	-	6	8	15	14	43
	%	-	12.2	19.3	35.9	32.6	100

79% agree that any safety concerns can be communicated to the next level in a non-punitive atmosphere and 16.3 % disagree on the statement “Any safety concerns can be communicated to the next level in a non-punitive atmosphere” and 4.7% have no opinion.

86% agree that Safety concerns once raised are dealt with in a timely and comprehensive manner and 14% disagree on the statement. 81.4% agree that there is high awareness in reporting safety hazards and 14 % disagree that “There is high awareness in reporting safety hazards”.

100% agree that that the identification of hazards plays an integral part in boosting the organization’s safety culture.

79% agree that all staff is regularly updated on safety issues by management and 20.9% disagree that all staff are regularly updated on safety issues by management.

88.4% agree that Safety reports are regularly feedback to frontline staff so that everyone learns the lessons and 11.6% disagree that Safety reports are regularly feedback to frontline staff so that everyone learns the lessons.

76.7 % agree that Staff at all levels; fully understand the hazards and risks of their own operation and 16.3 % disagree that Staff at all levels; fully understand the hazards and risks of their own operation and 7% have no opinion.

68.5 % agree that Staffs work continuously to identify and overcome threats to safety, 12.2 % disagree on the statement “Staffs work continuously to identify and overcome threats to safety” and 19.3% have no opinion.

The result shows that in some of the Private Operators there is lack of employee motivation that encourages non-punitive reporting, there is lack of appropriate and timely action on safety issues, there is lack of awareness in reporting safety hazards.

Some employees of the organization lack awareness of the hazards and risks of their own operation, at hazard or threat identification is not fully realized in the organization.

There is no strong feedback system and the organization management has no serious concern in safety issues.

Respondents were presented with three questions on Possible Future Challenges on Safety Management System as indicated in the table below

Table 21: Possible Future Challenges

POSSIBLE FUTURE CHALLENGES		Strongly disagree	Disagree	No Opinion	Agree	Strongly Agree	Total
23. While safety is important there is a limited supply of resources available and so it's not possible to invest fully in safety.	Freq.	3	20	5	12	3	43
	%	5.7	47.5	12.5	28.6	5.7	100
24. The challenging economic climate has resulted in re-organization and/or downsizing which make investment in safety difficult.	Freq.	2	18	15	6	2	43
	%	4.7	41.8	34.8	14	4.7	100
25. Our safety culture is excellent and requires no further improvement.	Freq.	11	32	-	-	-	43
	%	25.6	74.4	-	-	-	-

53.2 % disagree in the concept “while safety is important there is a limited supply of resources available and so it’s not possible to invest fully in safety”, 34.3 %agree on the concept and 12.5% have no opinion.

46.5% disagree in the concept “the challenging economic climate has resulted in re-organization and/or downsizing which make investment in safety difficult”, 18.7% agree on the concept and 34.8% have no opinion.

100% disagree in the concept “Our safety culture is excellent and requires no further improvement.”

The result shows that investing in safety is a priority in all cases for survival of an organization and this emphasizes that safety culture is not a one time achievement it is a continuous improvement.

4.1.7 Findings from open ended questions on QMS & SMS

Five open ended questions were presented and responded by the participants, the questions were focused on challenges faced in implementing QMS & SMS, benefits of implementing QMS & SMS, conditions to be fulfilled for the success of QMS & SMS in an organization, importance of continuous improvement and recommendation to improve the Quality Management System and Safety Management System.

Accordingly the respondents indicated the challenges encountered in implementing QMS & SMS such as lack of top management commitment, shortage of adequate resource to regularly organize training, lack of transparency between management and employees and lack of business. In addition the respondents indicated the challenges in implementing SMS such as Operating in a reactive mode rather than proactive, lack of strong hazard reporting culture which is one of the main pillar for practicing SMS.

The respondents have also mentioned that QMS & SMS will have great benefit if it is implemented on a regular basis and brings continuous improvements, improves company culture and improve company growth, and also the respondents indicated that it is essential for the growth and survival of an organization and the respondents also indicated that in aviation safety and quality are not just necessities but the most important aspect of survival of an organization.

The respondents have also indicated what they believe are most important for the success of QMS & SMS in an organization, accordingly the respondents indicated that Commitment of TOP management and willingness to invest in QMS & SMS , clear QMS and SMS quality policy & objective, QMS & SMS Awareness , training & recurrent training for employees.

They have also stated their opinion that continuous improvement supports an organization to minimize accidents and incidents, to produce quality, reliable products or services and to keep the company on the right track

The following points were recommended by the respondents that can support to improve the Quality Management System and Safety Management System

- The Regulator (ECAA) to do an intense control through audit and also to organize training to aviation personnel in collaboration with different institutes.
- Appropriate support from the higher management and allocation of adequate resource taking into account that QMS and SMS an investment for the survival and growth of an organization.
- Continuous assessment of QMS & SMS and periodic management review to discuss on the issues related to QMS & SMS.

The result specifies that QMS & SMS are valuable, it improves company culture, brings continuous improvement if it is implemented appropriately and continuous improvement is vital for the success of an organization.

the result identifies that there are challenges in implementing QMS &SMS such as, irregularity of training, lack of transparency between Management and employees, communication gap and lack of strong hazard reporting culture in the organization, that Management commitment and willingness to invest are crucial for the success of QMS & SMS in an organization.

The result ascertains the importance of Regulatory control, appropriate Management support and allocation of adequate resource for QMS and SMS,, employee training; close supervision of management will enhance the Quality Management System and Safety Management System.

Summary of the results on Practice of QMS & SMS

Quality Management System (QMS)

The staffs have general information about the system concept of QMS, Employees were not fully participated in QMS and **training on QMS** was not given to all employees and to all Managers except few.

There is a lack of **understanding of the purpose and benefits of QMS**, lack of **top management commitment and sufficient support** to implement QMS, there is no in-depth involvement and empowerment of employees and there is lack of **motivation and reward system** in some of the Private operators.

There is no **strong customer feedback system**, the employees are not well-informed about the customer feedback system, customer satisfaction principles are not fully realized and there is no well-established mechanism for measuring and monitoring of internal and external customer satisfaction in some of the Private operators.

Most of the private operators have no training programs relating to Quality Management System.

Safety Management System (SMS)

The result indicates that the staffs have general information about SMS, Employees were not fully participated in SMS and **training on SMS** was not given to all employees and to all Managers except few.

The result shows that in some of the Private Operators, the **safety policy statement** is not entirely communicated to all employees in the organization, the organization management have not given proper attention to the safety policy statement and it is not well articulated so that to be applicable to all levels within the organization and there is no adequate **support from the top management for implementing and maintaining a positive safety culture** in the organization, the employees within the organization have no clear recognition of the need to develop and foster a good safety culture., there is lack of circulation of information or lack of **communication** within the organization.

The result point out that there is lack of employee motivation that encourages **non-punitive reporting** and lack of **awareness in reporting safety hazards**, threat or **hazard identification** is not fully realized and .lack of strong **hazard reporting culture** in some of the Private Operators.

4.2 Discussion

The discussion is based on the results that have emerged from the findings of the research

4.2.1 Top Management commitment (Leadership)

Top management translates the policy into goals, objectives, and strategies, and projects a shared-vision of the future. It makes decisions that affect everyone in the organization and is entirely responsible for the success or failure of the organization.

Leaders at all levels establish unity of purpose and direction and create conditions in which people are engaged in achieving the organization's quality objectives (ISO 9002:2015).

Many researchers have suggested lack of top management support and commitment as one of the most common barriers in QMS Implementation (Manish, 2016)

Top management commitment is the number one factor and is the first step and prerequisite for the success of QMS & SMS implementation

The commitment level of the top management shows how the top management officials participate in the function of the firm at various levels (Rateb S, 2019).

4.2.2 Training and training program

Training increases the skills of employees in the performance of a particular job, a well-trained employee usually shows greater productivity and higher quality of work-output than an untrained employee. a trained workforce are employees with updated skills that can improve quality of service or product, reduce time and cost in making product or service, reduce mistakes, build confidence in the workforce, and create a better working environment.

A training program allows an organization to strengthen those skills that each employee needs to improve, a strong training and development program ensures that employees have a consistent experience and background knowledge.

4.2.3 Hazard reporting culture

Hazard identification is a prerequisite to the safety risk management process and Effective hazard reporting is a key component of safety management (ICAO, 2013).

Organizations with strong safety culture have improved hazard reporting quality and metrics. The most observable benefits of hazard reporting: It is the first barrier against avoiding dangerous situations; it is the primary way for identifying new threats; and it is a way to assess whether or not existing risk controls are suitable enough.

4.2.4 Employee motivation and Engagement

Competent, empowered and engaged people at all levels throughout the organization are essential to enhance the organization's capability to create and deliver value. (ISO 9002:2015).

People at all levels are the essence of an organization and their full involvement enables their abilities to be used for the organization's benefit

4.2.5 Customer feedback system

Customers are huge asset to business, it's more important to maintain a strong relationship with customers so they stay loyal to the organization.

customer feedback is a process of acquiring a customer's opinion about the organization product, or service, it is giving customers a chance to tell the organization what it need to do to keep the business ,It is an important aspect of running a business that often gets overlooked. Customer feedback system is crucial for the success of an organization

CHAPTER FIVE: CONCLUSION AND RECOMMENDATION

5.1. Conclusion

The general objective of this research was to assess the Quality Management system and Safety Management system practices in Private aviation in Ethiopia and the Specific objectives were to assess and evaluate the trend of the existing Quality Management system and Safety Management system practices in the Private Air Operators in Ethiopia, to identify the problems and to give suggestion on the areas of improvement.

The results obtained from the analysis indicate that QMS & SMS practices are commenced in the Private Aviation.

QMS & SMS require the involvement of all staff, from top management down to the employees at lower level; it needs change of organizational culture to develop QMS & SMS.

Jerry has specified that “a true cultural change does not occur if only a majority of people accept the culture. Survey results indicate percentages need to approach ninety to one hundred percent of people that must accept the SMS culture to achieve success” (Jerry, 2014).

The findings indicates that, the main challenge is the commitment and support of the top management is not adequate and strong to support the practicing both QMS & SMS.

There is lack of training and training program and shortage of resource to regularly organize training; Training is not provided in regular basis for the managers and employees. These have a negative impact on the organization.

Employees have no full participation in the QMS & SMS activities and are not empowered. There is lack of motivation and reward system, lack of employee motivation that encourages non-punitive reporting. Employees are not aware on the needs to develop and foster good safety culture, lack of awareness on hazard, hazard identification and Hazard reporting culture is not so strong .lack of communication and feedback system within the organization.

Customer satisfaction principles are not fully realized, there is no well-established mechanism for measuring and monitoring of internal and external customer satisfaction.

5.2. Recommendations

The researcher makes the following recommendations based on the findings and based on the study in general.

Government/Regulator

Aviation industry is very resource intensive therefore the concerned entity of the government should assist the candidate and active Private Aviation Operators to engage with confidence in the aviation industry.

Private Operators

Top Management believe, commitment and support is very vital to fully implement both QMS & SMS and the higher management of the private operators shall consider this as critical and shall be committed to comply with and to demonstrate their commitment through their actions rather than words.

As indicated by Kathleen it is highly doubtful that the rest of the organization will buy-in SMS without real understanding and commitment from the top. (Kathleen, 2009)

Lack of training Program and lack of training will have a negative impact on the organization, in practicing QMS & SMS, it shall be considered as the main issue and it shall not be given as formality in order to get the training certificates.

Top Management shall be involved and committed to allocate the required resources and to ensure staff training on both QMS and SMS.

It is difficult to fully implement Safety Management System for an organization by its own, it needs cooperation between organizations and as well with regulator, as Jouni said no company can manage implementing the safety management system properly using only its own resources. Co-operation of companies is needed and Regulatory agencies should provide support for co-operation (Jouni, 2017).

Hazard reporting is a key component of safety management, Hazard reporting is critically important to any aviation service provider. SMS Component: Safety risk management (ICAO, 2013)

Staffs are often in the best position to identify the hazards in the workplace because they are the ones who perform the work. Organization should create a positive safety culture by encouraging staff to understand their own safety and of those working around them and implement a clear reporting system and encourage reporting culture.

James Reason states that a safe culture is an informed culture and this, in turn, depends upon creating an effective reporting culture (James reason 1997).

Organizations shall create employee motivation mechanism as motivated workforce is very vital for an organization, it is one of the significant factor in organizational success, motivated employee works at higher levels of productivity and the organization as a whole runs more efficiently and will be more effective at reaching its goals.

Organization shall have strong Customer feedback system as customers are huge asset to business, it's more important to maintain a strong relationship with customers so they stay loyal to the organization.

customer feedback helps an organization by giving customers a chance to tell the organization what it need to do to keep the business ,It is an important aspect of running a business that often gets overlooked. Customer feedback system is crucial for the success of an organization.

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APPENDICES:

Appendix I: Questionnaire on Quality & Safety Management System Practices in Private Aviation in ETHIOPIA



St. Mary's University School of Graduates studies Questionnaire

Dear Participant,

As it is well known based on ICAO standards and recommended practices, ECAA has required the service providers to implement Safety Management Systems and Quality Management System in order to achieve a greater level of safety and Quality in civil aviation.

The primary objective of the questionnaire is to enable to capture essential information by collection of data and to make an assessment regarding the study on **“Quality & Safety Management System Practices in Private Aviation in ETHIOPIA”**.

I would like to thank you for your participation in completing this questionnaire, your kind assistance to complete the questionnaire is highly appreciated, as the information will have high contribution for the completion of this study. The first part of this questionnaire is aimed to collect demographic information about the characteristics of the respondent, while the second, third and fourth part focuses on capturing relevant information relating to the study subject. Information you provide through this questionnaire will be utilized for analysis and academic purposes for the study in-partial fulfillment of the requirements for the award of the Degree of Master of Science in Quality and Productivity Management. Once the questionnaires are returned they will be analysed and conclusion will be made. Ultimately it is hoped that the analysis will identify areas of strength and weakness, thus assisting to indicate points that may help for improvement in the future.

This questionnaire is anonymous, confidential and in no way identifies the participant.

There is no need to write your name

Thank you!

Part 1 requests on general details

Please Mark () your inclination on the right place

1. Please indicate the core business which best describes your organization.

<input type="checkbox"/>	Scheduled Flight	<input type="checkbox"/>	Medical Evacuation/Air Ambulance
<input type="checkbox"/>	Unscheduled Flight	<input type="checkbox"/>	Aerial Application
<input type="checkbox"/>	Air charter (Passenger & Cargo)	<input type="checkbox"/>	Aerial Survey, photography, Filming
<input type="checkbox"/>	International Flight	<input type="checkbox"/>	Special Services, Company Operator
<input type="checkbox"/>	Domestic Flight	<input type="checkbox"/>	Helicopter Operator

2. Please indicate the functional area which best describes the sector you are employed in within your organization.

- | | | |
|--|---|--|
| <input type="checkbox"/> Flight Operations | <input type="checkbox"/> Quality | <input type="checkbox"/> Finance |
| <input type="checkbox"/> Marketing | <input type="checkbox"/> Maintenance | <input type="checkbox"/> Legal service |
| <input type="checkbox"/> Safety | <input type="checkbox"/> Administration | <input type="checkbox"/> Other |

3. Please indicate years of experience

- | | |
|-------------------------------------|---|
| <input type="checkbox"/> 5-10 years | <input type="checkbox"/> above 10 years |
|-------------------------------------|---|

4. Please indicate age range

- | | | |
|--------------------------------|--------------------------------|--------------------------------|
| <input type="checkbox"/> 18-29 | <input type="checkbox"/> 30-39 | <input type="checkbox"/> 40-49 |
| <input type="checkbox"/> 50-59 | <input type="checkbox"/> >=60 | |

5. Please indicate gender

- | | |
|---------------------------------|-------------------------------|
| <input type="checkbox"/> Female | <input type="checkbox"/> Male |
|---------------------------------|-------------------------------|

**Part II: Questionnaire on the Practices of Quality Management System (QMS)
& Safety Management System (SMS) in your organization please
choose and Mark your position in the right place**

ITEM	DESCRIPTION	POSITION	
		QMS	SMS
1.	<p>How do you explain the QMS & SMS in your organization?</p> <p>a. The system had no significance at all.</p> <p>b. The negative effect of the system overrides the significance of the system.</p> <p>c. The system is significant but it can't be practically implemented in aviation</p> <p>d. The system create improved environment in different aspects of the service.</p> <p>e. The system is a necessity question for the wellbeing of the organization</p>		
2.	<p>How do you explain the awareness of the staff about QMS & SMS?</p> <p>a. Not aware at all</p> <p>b. Only less than 50% of the staff has general information about the system concept</p> <p>c. 50 % and more of the staff have general information but not clear with the necessity of the system and what expected from them.</p> <p>d. 50 % and more of the staff have detailed information on the necessity, expectation from them.</p>		
3.	<p>How do you explain the participation of professionals in QMS & SMS?</p> <p>a. Not participated at all.</p> <p>b. Less than 50 % of the staff participated</p> <p>c. 50 % and more of the staff participated</p> <p>d. Don't know</p>		
4.	<p>How do you explain the training of employees on QMS & SMS?</p> <p>a. Not provided</p> <p>b. Only for case team leader</p> <p>c. Less than 50% of the staff provided</p> <p>d. 50% and more of the staff provided</p> <p>e. Don't know</p>		
5.	<p>How do you explain the training of managers on QMS & SMS?</p> <p>a. Not provided</p> <p>b. Less than 50% of the staff provided</p> <p>c. 50% and more of the staff provided</p> <p>d. Don't know</p>		

Part III: Please indicate using the five point scale how true the following statements are with regard to the Practices of QMS in your organization

Item	Statement	Strongly disagree	Disagree	No Opinion	Agree	Strongly Agree
1	There is a lack of understanding of the purpose and benefits of QMS					
2	Lack of top management commitment to implement QMS					
3	No sufficient support from the top management to implement QMS					
4	No employees involvement and empowerment					
5	Employees resist change to the existing system in the organization					
6	Lack of motivation and reward system					
7	The organization does not focus on customers					
8	There is a lack of cooperation from customer					
9	No customer feedback systems					
10	Customer satisfaction principle not appreciated in the organization					
11	Lack of measurement and monitoring of internal and external customer satisfaction					
12	There is a lack of periodic management review					
13	The organization has a lack of recording of management review results					
14	lack of training programs relating to Quality Management System					
15	The organization trains its employees without specific purposes					

Part IV: Please indicate using the five point scale how true the following
Statements are with regard to the Practice of SMS in your organization

Section A: Safety policy

Item	Statement	Strongly disagree	Disagree	No Opinion	Agree	Strongly Agree
1	All employees at all levels are aware of the safety policy statement					
2	The safety policy statement is an accurate reflection of the company's commitment to safety.					
3	The safety policy statement is applicable to all levels within the organization.					
4	There is adequate corporate support for implementing and maintaining a positive safety culture in the organization.					

Section B: Essential elements of a Safety system

Item	Statement	Strongly disagree	Disagree	No Opinion	Agree	Strongly Agree
5	There is clear recognition within my organization of the need to develop and foster a good safety culture.					
6	Safety is everybody's business.					
7	Compliance with regulatory requirements is viewed as essential in maintaining a good safety culture					
8	Strong leadership skills are instrumental in promoting a positive safety culture.					
9	Staff training is viewed as playing an integral part in fostering a better safety culture.					
10	Good communication is an essential mechanism in fostering a better safety culture.					
11	The circulation of information is viewed as key in nurturing safety culture.					
12	All employees are regularly informed about "lessons learnt" from incidents or near misses.					
13	I believe that "lessons learnt" provide a valuable means of strengthening our safety culture.					
14	There is a willingness to learn from the experience of other organizations					

Part IV: Please indicate using the five point scale how true the following statements are with regard to the Practice of SMS in your organization

Section C. Issue of Hazards

Item	statement	Strongly disagree	Disagree	No Opinion	Agree	Strongly Agree
15	Any safety concerns can be communicated to the next level in a non-punitive atmosphere.					
16	Safety concerns once raised are dealt with in a timely and comprehensive manner.					
17	There is high awareness in reporting safety hazards					
18	The identification of hazards plays an integral part in boosting the organization's safety culture.					
19	All staff are regularly updated on safety issues by management					
20	Safety reports are regularly feedback to frontline staff so that everyone learns the lessons.					
21	Staff at all levels; fully understand the hazards and risks of their own operation.					
22	Staffs work continuously to identify and overcome threats to safety.					

Section D: Possible Future Challenges

Item	Statement	Strongly disagree	Disagree	No Opinion	Agree	Strongly Agree
23	While safety is important there is a limited supply of resources available and so it's not possible to invest fully in safety.					
24	The challenging economic climate has resulted in re-organization and/or downsizing which make investment in safety difficult.					
25	Our safety culture is excellent and requires no further improvement.					

Source: IRISH Aviation Authority (May 2011)

Write your opinion on the following Questions below

1. What are the challenges you faced in implementing Quality Management System and safety Management System in your organization?
2. What is your opinion about the benefits of implementing Quality Management System and safety Management System in an organization?
3. Give some examples of what you believe are most important for the success of Quality Management System and safety Management System in an organization
4. Why is continuous improvement becoming a major emphasis for an organization?
5. What do you recommend to improve the Quality Management System and safety Management System?

Thank you for taking the time to complete this survey

Your cooperation is greatly appreciated

Would appreciate you returning this questionnaire to

Zegeye Dessalegn: +251-911-47-97-91,

or via email through :zegeyedessalegn@gmail.com

Appendix 2: Examples of Hazards by Type, by Organization & Sources for Identifying Hazards

Appendix 2.1 Examples of Hazards

Appendix 2.1.1 Example Hazards by Hazard Type:

Natural

- Severe weather or climatic events: Hurricanes, major winter storms, drought, Tornadoes, thunderstorms lighting, and wind shear.
- Adverse weather conditions: Icing, freezing precipitation, heavy rain, snow, winds, and restrictions to visibility.
- Geophysical events: Earthquakes, volcanoes, tsunamis, floods and landslides.
- Geographical conditions: E.g.: adverse terrain or large bodies of water.
- Environmental events: wildfires, wildlife activity, and insect or pest infestation.
- Public health events: epidemics of influenza or other diseases.

Technical

- Aircraft and aircraft components, systems, sub-systems and equipment's. This includes Failures, inadvertent or erroneous functioning of Systems.
- An organization's facilities, tools, and related equipment.
- Facilities, systems, sub-systems and related equipment external to the organization.

Economic

- Major trends related to: Growth, Recession, Cost of material or equipment, Fuel cost, Environmental issues, etc.
- Diverging interests: operation vs. shareholder

Ergonomic

- Deficiencies in the environment the front line employees have to operate
- 24-hour operation with impact on individual's performance (circadian cycle)

Organizational

- Complex organizational structures resulting in unclear responsibilities
- Re-organization.

Appendix 2.1.2 Example Hazards by Organization:

Airport Operator

- Worn Runway Markings
- Unclear ramp marking for vehicle holding point
- Fuel Spillage
- Not well lit parking position
- Partial failure of weather monitoring devices (e.g. anemometer)

Ground Handler

- Jet Blast
- Noise
- Understaffing
- Misinterpretation of Load-sheet
- Wet surfaces/ equipment
- Improper application of anti-icing fluid

Aircraft Operator

- Load-sheet errors
- Lack of sleep during off duty
- Partial failure or loss of navigation systems
- Error in FMS database
- Loss of radio communication
- Wrong read-back of ATC clearance
- Expired Aeronautical information
- Loss of transponder transmission

Air Navigation Service provider

- Loss of communication
- Loss of aircraft separation
- Improper flight handover
- Improper clearance
- Use of wrong call sign
- Adverse weather conditions
- Diversion of multiple aircraft
- Loss of transponder transmission

Maintenance Organization

- Use of out-dated procedure
- Delayed implementation of AD
- Use of non-OEM certified parts
- Improper handover of remaining work to next shift
- Improper application of paint or other chemicals
- Chemical spillage
- Repair of wrong system/component

Appendix 2.2: Examples of Sources for Identifying Hazards

1. Flight Operations Data Analysis (FODA) / Flight Data Monitoring (FDM)
2. FODA-Campaigns (subject specific in-depth analysis)
3. Flight Reports
4. Cabin Reports
5. Maintenance Reports
6. Confidential Safety Reports
7. Operations Control Reports
8. Maintenance Reports
9. Reports of the NAA
10. Crew Surveys
11. Crew Observation (LOSA)
12. Investigations & Hearings
13. Partner Airline Assessments
14. Quality Assurance Programme (Quality Audits acc. EU-OPS)
15. Training records (e.g. crew periodic checks, simulator checks and training, line checks,
16. Manufacturers reports and SIE safety information exchange programs
17. Safety Reporting
18. Observation of Maintenance operations (if applicable)
19. Safety & Quality Audits / Assessments
20. Safety Culture monitoring through surveys
21. Internal safety investigations
22. Ad-hoc questionnaires on chosen Safety Issues
23. Internal safety workshops
24. External safety information
25. Training records
26. Company voluntary reporting system
27. Audits and surveys
28. Ground Handling Report
29. Disruptive Passenger Report
30. Captain's Special Report
31. Flight and Duty Time Discretion Report
32. Flight Operations Monitoring
33. Accident reports
34. State mandatory occurrence system
35. Organization's partners
36. Assessment of partners
37. IOSA reports

Ilias Maragakis EASA (March 2009)

DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of my advisor Dr. Mesfin Teklehaimanot. All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

Zegeye Dessalegn

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Signature

May 2020

ENDORSEMENT

This thesis has been submitted to St. Mary's University College, School of Graduate Studies for examination with my approval as a university advisor.

Mesfin Tekle Haimanot (Dr.)

Advisor
St. Mary's University
Addis Ababa

Signature
May 2020