STRATEGIC HUMAN RESOURCE FACTORS AND IMPLEMENTATION OF SAFETY MANAGEMENT MEASURES IN THE AVIATION INDUSTRY IN KENYA: A CASE OF KENYA AIRPORTS AUTHORITY

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DECLARATION

This research proposal is my original work and has not been presented in any other University for the award of a degree.

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DEDICATION

I dedicate this project to my creator the God Almighty. Secondly, I dedicate this research project to my parents and family members.

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I am most grateful to Almighty God for His grace and protection throughout this period of my post graduate studies. I sincerely appreciate my supervisors Dr. Kiprop Kibos sand Dr. Lucy Kirima who offered timely guidance, criticism and correction during the various stages of writing the project. Their wisdom, patience, and encouragement have been immensely valuable, making this challenging endeavor feel achievable.I also want to thank the African Nazarene University fraternity for allowing me conduct this research project under their charge. I want to express my profound appreciation to my husband Patrick Juma, whose unwavering support and love have been my anchor during this academic pursuit. His encouragement, understanding, and patience have been immeasurable, and I am incredibly thankful for his unwavering belief in my capabilities. I also extend my gratitude to my children, Wayne, Wendy and Warren Juma, for their unconditional love and understanding throughout this period. Their patience and motivation have served as a constant source of inspiration, and I feel truly blessed to have them in my life. Furthermore, I sincerely appreciate all those who have supported me on this journey. Each contribution, regardless of its size, has made a significant impact, and I am genuinely thankful for every one of you. In conclusion, I would like to acknowledge the invaluable guidance and mentorship provided by my professors, whose commitment to their students and enthusiasm for the subject have motivated me to exceed my limits.

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ABSTRACT

In recent years, the global airline industry experienced significant growth, emerging as one of the most safety-critical sectors worldwide. Despite this growth, the industry faced challenges such as flight cancellations and delays, often attributed to inadequate safety management systems. These systems are crucial for identifying and mitigating safety risks before they escalate into accidents. This study focused on the aviation industry in Kenya, specifically the Kenya Airports Authority, aiming to examine the impact of strategic human resource factors on the implementation of safety management measures. The study objectives included assessing the effects of human competencies, situational awareness, human communication, and psychophysical parameters on safety management implementation in Kenya's aviation sector. Anchored in human capital and dynamic capability theories, the study employed an explanatory research design. The target population comprised senior management and airport staff involved in operations, security, and safety. The study applied simple random sampling by taking 15% of the target population from each stratum as sample population giving a sample size of 148 respondents. Stratified random sampling was used to select the study sample, and data was collected through a structured questionnaire. Both descriptive and inferential statistics were used for data analysis. Ethical considerations were paramount to ensure the ethical treatment of all participants. The findings revealed that strategic human resource factors significantly influenced the implementation of safety management measures in the aviation industry in Kenya. Specifically, human competencies, situational awareness, human communication, and psychophysical parameters were found to play crucial roles in enhancing safety management practices. These findings underscore the importance of focusing on human resource competencies to provide a systematic approach to managing safety management systems in the aviation industry.

OPERATIONAL DEFINITION OF TERMS

Human communication	is the art that allows aviation professionals to share information, coordinate activities, and make informed decisions.
Human Resource	are the physical, cognitive, and social factors that affect human performance and play a significant role in all aspects of aviation safety, from flight operations to maintenance
Psychophysical parameters	refer to the human factors and cognitive processes that affect an individual's perception, decision-making, and behaviour and include but are not limited to Human Error, which is a significant contributor to aviation accidents and incidents
Safety Assurance	Is ongoing monitoring and evaluation of safety performance to identify areas for improvement and ensure compliance with regulatory requirements and best practices
Safety Management measures	is a formalized, systematic approach to managing safety in all aspects of aviation operations that includes policies, processes, and procedures for identifying, analysing, and controlling hazards
Safety management system	is the overall set of procedures, documentation, and knowledge systems as well as the processes using them, which are employed within an organisation to control and improve its safety performance
Safety Risk Management	Is a process which typically involves four steps: hazard identification, risk analysis, risk evaluation, and risk control
Situational awareness	is the ability to perceive the elements of one's environment and to understand their meaning and implications. It is a critical skill for aviation professionals, as it allows them to make informed decisions in real-time

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ABBREVIATIONS & ACRONYMS

ADC	Agricultural Development Corporation
ASN	Aviation Safety Networks
CASSOA	Civil Aviation Safety and Security Oversight Agency
EC	European Commission
FAA	Federal Aviation Administration
HFACS	Human Factors Analysis Classification System
ICAO	International Civil Aviation Organization
ICT	Information communication Technology
ISO	International Standardization Organization
KAA	Kenya Airports Authority
LLC	Limited Liability Company
NTSB	National Transportation Safety Board
SA	Situational awareness
SARP	Standards and Recommended Practices
SMS	Safety Management Systems
UN	United nations
WHO	World Health Organizati

CHAPTER ONE:INTRODUCTION

1.0 Introduction

This chapter covers background of the study. It also covers statement of the problem, objectives of the study (general and specific), research questions, justification of the study in respect of various stakeholders, scope of the study and limitations of the study.

1.1 Strategic Human Factors

According to International Civil Aviation Organization (ICAO, 2018), human factors are the physical, cognitive, and social factors that affect human performance and play a significant role in all aspects of aviation safety, from flight operations to maintenance. Some of the most important human factors that affect aviation safety include human competencies, situational awareness, human communication, and psychophysical parameters.

Stolzer (2018) explored human Factors Analysis Classification System (HFACS), organizational influence, supervisory factors, preconditions for unsafe acts, and unsafe acts are sources of human errors in the aviation industry Further, Adjekum and Fernandez-Tous (2020) observed that human error, rather than mechanical failure, underlies most aviation accidents and incidents. Aviation safety is heavily influenced by human factors and approximately 80% of aviation accidents, according to Boeing, are the result of human mistake . If they are not detected, they can cause worker injuries, wasted time, and even accidents. Human factors can also lead to improved quality, an environment that ensures continuing worker and aircraft safety, and a more involved and responsible work force. Stolzer et al. (2018) continued argued that humans are prone to errors that can be detrimental to the safety of fligh. This is because errors are consequences of human actions or inactions that reduce safety margins and lead to deviations from operational rules . More specifically, the reduction of even minor errors can provide measurable benefits including cost reductions etc

Strategic human capital plays a critical role in the implementation of safety measures in the aviation industry. Human capital encompasses the knowledge, skills, experience, and expertise of employees, and in an industry as safety-sensitive as aviation, it is paramount for ensuring the safe and efficient operation of aircraft. Hersman, (2019) Well-trained and highly skilled aviation professionals, including pilots, air traffic controllers, maintenance personnel, and cabin crew, are essential for the safe operation of aircraft. Their expertise and continuous training ensure they can handle complex and unexpected situations effectively, reducing the likelihood of accidents. The level of training and experience of aviation personnel, including pilots, air traffic controllers, ground personnel and maintenance crew, can impact their ability to respond appropriately to safety challenges. According to Byrnes et al. (2022), Strategic human capital management is crucial in fostering a safety culture where all employees prioritize safety, report safety concerns, and actively engage in safety-related initiatives.

Strategic human capital ensures that airlines and aviation organizations maintain the necessary expertise to meet regulatory requirements and standards, reducing the risk of safety violations (ICAO, 2020). Pahala (2021), a well-trained and competent workforce instils confidence in passengers. Passengers who trust in the skills and professionalism of aviation personnel are more likely to choose air travel, contributing to the industry's overall success .. Safety mindfulness is about creating flows of information that support the staff's capability to remain mindful of safety when carrying out their activities and that support managers in maintaining safety oversigh(Pinholster,2019).

Safety culture refers to the norms, values, and practices shared by all people in the organisation in relation to safety and risk. Typically, a level of safety in an organisation is materialized by the way that operations are conducted ("work as done" rather than "work as imagined") at the sharp end, which is influenced by decisions and operating conditions created by middle and top management at the blunt end (ICAO 2020). As such, the level of safety is influenced by the safety culture, by the safety mindfulness and safety intelligence processes, and by the safety management processes. However, human factors and safety culture, safety management measures are often observed as being bureaucratic, distinct from actual operations, and being too much focused on the prevention of deviations from procedures rather than on the effective support of safety in the real operational context (Omondi & Kimutai, 2018).

1.1.1 Safety Management Measures

Safety Management measures in aviation is a formalized, systematic approach to managing safety in all aspects of aviation operations. It is a comprehensive management system that includes policies, processes, and procedures for identifying, analysing, and controlling hazards. Safety Management measures aims to continuously improve safety performance, prevent accidents and incidents, and meet safety goals.

The International Civil Aviation Organization (ICAO, 2020) defines Safety Management measures as "a systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies, and procedures." The Federal Aviation Administration (FAA, 2019) describes Safety Management measures as a proactive and innovative approach to system safety. The aviation industry is constantly evolving, and new risks and threats arise regularly(Sadi-Nezhad, 2021). Therefore, managers and operators of these transportation firms need to maintain a delicate balance between productivity, profitability, and the effectiveness of safety programs to achieve success.

The significance of implementing safety management measure in the aviation industry can be gained through improvement of safety culture within aviation organizations as it emphasizes the importance of safety at all levels of the organization and creates a safety-conscious work environment(Hapsari , 2021). By having a safety management system or measures documentation in place, employees become more aware of safety hazards and risks, which can lead to a safer working environment and fewer safety incidents. Safety management system or measures help reduce accidents and incidents. By identifying and mitigating safety risks, aviation organizations can reduce the likelihood of accidents and incidents occurring.

According to Ricardiantoet (2022) safety management system or measures provides a systematic approach to managing safety risks, which can help identify and mitigate safety risks before they become accidents or incidents. Safety management system or measures enhances efficiency and effectiveness. By identifying and mitigating safety risks, organizations can streamline their operations, reducing delays and costs associated with safety incidents. Additionally, safety management system or measures provides a systematic approach to quality management methods, which can help identify areas for safety improvement and streamline safety processes. The use of

safety management system or measures ensures compliance with safety regulations. By implementing safety management system or measures, aviation organizations can ensure compliance with regulatory requirements and avoid potential penalties or fines for non-compliance (Virgiawan, 2021)..

1.1.2 Overview of Aviation Industry

The aviation industry comprises all features of mechanical air transportation carried out using an aircraft and all activities that facilitate it. The Airline industry primarily focuses on providing passenger transportation services. It revolves around the operation of scheduled flights that carry passengers from one destination to another. Airlines play a pivotal role in offering air travel as a means of transportation for individuals and tourists.

Sadi-Nezhad, (2021) there has been significant growth in the global airline industry driven by various factors such as the ease of reaching destinations without any physical barriers, fast transportation at affordable prices, increased private sector involvement and investments, growing business interactions resulting in greater demand for non-scheduled flights, higher levels of exports and imports, and an increase in freight traffic. Hapsari and Endri (2021) globalization has driven a surge in international trade, necessitating efficient transportation of goods, with Airlines like FedEx and UPS stepping up to fulfill the growing demand. Policies promoting air travel liberalization result in increased choices, lower fares, and better connectivity, as seen in the growth of low-cost carriers in Europe through the Open Skies policy (Sadi-Nezhad, 2021). Rapid urbanization in emerging markets increases demand for air travel, creating growth opportunities for Airlines catering to the growing middle-class population.

Opportunities that support the development and expansion of the Aviation industry include: Adopting Latest Technologies that fuel cost savings, maintenance savings, and solutions to boost productivity and profitability. This can include in-flight connection and virtual reality (VR). Biometric identification methods are also gaining popularity, and traveling will be safer and more convenient with biometric verification or facial scanning. With the rise of globalization, airlines can now operate in nations other than their own. By adding more destinations to their flight schedules, airlines can increase their popularity, directly affecting their brand's reputation and image (Widodo,2021).

Though the aviation sector has shown considerable growth in the past few years, yet it is still plagued by flight cancellations and delays. There are frequently several factors that contribute to delays such as inclement weather, tardy ground staff in refueling planes, and an airport overwhelmed by the number of passengers waiting for the pilots. One method to cut back on delays is the increased use of advanced monitoring technology to improve airport and airline operations (Chebichii,2021).

Multiple cycles of financial successes and failures have left airlines struggling to find a business model that can ensure sustained profitability. Linden (2021) Competitive pressure from LCCs, the loss of consumer confidence in the air transportation system's reliability and operating performance, and the transparency of pricing facilitated by the Internet and online travel distribution channels have all contributed to a precipitous decline in average fares and have had a significant impact on airline revenues.

Shillingi (2022) there has been much progress on issues of aviation safety and security since 9/11, with increases in the number of airport security screeners, improved screener training, and movement toward explosives screening for all checked baggage. Demand for air travel, particularly in short-haul markets, has been reduced by passenger perception of the "hassle factor" of increased security and the uncertainty of passenger processing times at airports. For the airlines, the new security procedures have increased operating costs and induced more security-related flight disruptions and delays (Agrawal , 2021).

Several factors, including the lack of coordination of airline flight schedules at some of the most congested airports, outdated air traffic control systems, finely tuned airline flight schedules with little slack to dampen delay propagation, and record-high load factors preventing timely re-accommodation of passengers who misconnect or whose flights are cancelled, all combine to create passenger disruptions and lengthy passenger delays (Wang & Blackman (2021). Solutions to the problem will require a mix of improved management of airspace and airport demand, and an increase in airport capacity brought about primarily by improved management and utilization of existing capacity.

Challenges such as sustaining airline profitability, ensuring safety and security, and developing adequate air transportation infrastructure are not confined to any single country. Airlines around

the world are facing competitive pressures, both from new entrant low-cost airlines and restructured legacy carriers. The rapid growth of the global airline industry and the continued threat of terrorist attacks make safety and security issues critical to every airline and every airline passenger. And the need for expanded aviation infrastructure, both airports and air traffic control, is of particular importance to emerging economies of the world such as India, China, Africa and the Middle East, where much greater rates of demand growth are forecast for both passenger and cargo air transportation

NASA,(2021) the Top Global aviation Safety Issues include: Controlled flight into terrain (CFIT): Thirty-two fatal accidents detailed in the ASN database were categorized as CFIT, which includes issues related to terrain and obstacle conflicts. Loss of control–in flight (LOC-I): The ASN database detailed 27 fatal LOC-I accidents in five years. LOC-I is another of ICAO's three high-risk occurrence categories(ICAO 2021). LOC-I includes issues related to loss of situational awareness and control of the aircraft during flight at a low speed, low- pitch and high bank angle. Mechanical/engine issues: These issues accounted for 13 fatal accidents in the five-year period. This category includes engine/power loss issues, landing gear functionality, and non-engine system/component failure. Linden (2021) Runway safety–approach and landing: Runway safety–approach and landing includes such issues as runway excursions, contaminated runways, high approach speeds, unstable approaches and go-around decision making. Midair collisions (MAC): This issue includes aircraft separation, loss of situational awareness, navigation errors and traffic-alert and collision avoidance system resolution advisories.

Sabotage/intentional acts: The ASN data show five fatal accidents related to sabotage or other intentional acts. Runway safety–conflicts: covers aircraft-to-aircraft or aircraft-to-other-vehicle conflicts on taxiways and runways. Bird/wildlife strikes: This includes conflicts with birds, primarily on take-off and during approach and landing, and conflict with terrestrial animals on the ground during the take-off roll or landing. Cabin safety: this include topics related to survivability following a crash, to operational issues such as flying into turbulence, and to the threat posed by hostile or unruly passengers. Fatigue: Although fatigue is often listed as a contributing factor in accident reports, it is an internationally recognized issue related to the broader issue of fitness for duty (Wang & Blackman ,2021).

Taking a longer-term view, the industry has improved its overall safety performance over the last ten years by 61%, with an accident rate in 2023 of 0.80 accidents per million sectors, compared to 2.06 in 2014. In 2013, there were 11 fatal accidents that resulted in 638 fatalities. Over the past five years, there have been an average of about five fatal accidents per year for commercial aircraft (passengers and cargo) resulting in an annual average of 143 fatalities. IATA(2021) continues its focus on supporting aviation stakeholders to continuously reduce the industry fatality risk.

A study carried out by the George Washington University Consortium (2023) indicates that many civil aviation regulatory authorities mandated by national governments to ensure safety and security of air transport operations are not able to sustain effective regulatory activities to match the pace of traffic growth. The industry is now faced with a different problem because the terrorists do not smuggle bombs into the airplanes, neither do they try to collect a ransom, they use airplanes as weapons against their target (Cahill & Gaynor ,2021)

The Flight Safety Foundation study from 2022 included 10-year accident statistics showing a cumulative increase of 16% in the total number of accidents in 2019 showed that the mortality risk climbed globally from 0.13% in 2020 to 0.23% in 2021. There is growing concern over increasing aviation-related disasters globally as most of these disasters occur around airports. To improve safety, new international and regional guidance and regulations for safety management have been set (ICAO, 2013; FAA, 2013; EASA, 2014; EC, 2014). However, Safety concerns remains a challenge in daily operations in aviation industry as indicated by the safety data collected through various initiatives (ICAO, 2019) There is need to take proactive measure on safety management in aviation industry as it increases the economy of a nation by providing employment globally.ff For instance, in Canada, the airport industry generates $8 billion dollars and provides 150,000 job opportunities annually (Krahnen ,2022).

Senior managers in Africa faces challenges related to aviation safety, African Development Bank report (ADB, 2020) pointed out that the performance of the African aviation industry is still lagging behind those of the rest of the world. In Kenya the aviation sector facilitates both international and domestic trade, promotes tourism and foreign investment thus contributing to government revenue and employment opportunities, however, the industry has experienced several challenges in their operations, which have seen some airlines close down **(**Agrawal & Peeta, 2021).

Given the global nature of the aviation industry, passengers are becoming more enlightened, sophisticated and demanding with regard to safety and the service they receive. Therefore, customer focus must be the primary concern of aviation management. The Kenya Vision 2030 and the AU Agenda 2063 both specifically target the aviation industry as an enabler of their respective economic plans (Mura, 2020). Despite the International Civil Aviation Organization (ICAO) introducing many safety management measures, the industry nevertheless experiences regular mishaps and accidents.

Kenya is required to comply with and implement the safety management system because it is a member of the ICAO community (International Civil Aviation Organisation [ICAO], 2019). According to the Kenya Civil Aviation (Safety Management) Regulations of 2018, which govern safety management, a service provider must create a plan to make it easier for the business to adopt a safety management system. According to the authorized authority governing civil aviation, the provisions in place have safety performance metrics that are acceptable (ICAO, 2020).

In the last two decades, Kenya has witnessed a number of fatal aviation disasters including the Busia (24th January 2023), Marsabit (10th April 2006), Narok (14th June 2008) and Ngong plane (10th June 2012) disasters in which prominent Kenyan political, administration and civil servant leaders have lost their lives (Mutugi and Maingi, 2011). A report by the Aviation Safety Networks (ASN, 2020) observes that it is evident that 50% of the air accidents occurred during take-offs, 28.6% during landing and 21.4% during cruise. Take-offs and landings accounted for 78.6% of the accidents, which is within the airport. This is despite the fact that Kenya is a signatory to the International Civil Aviation Convention (ICAC) that sets the standards and regulations to which airports and aerodromes must conform (Wang et al., 2021).

1.1.3 Strategic human resource factors and Implementation of Safety Management measures in the Aviation Industry

Aviation industry being one of the most safety-critical industries in the world, it is essential to have a strong focus on human competencies. However, the current state of human competencies in the Kenyan aviation industry is mixed. There are some highly skilled and experienced professionals

as well as some who do not have the required qualifications and experience working together in the industry resulting to gaps in human competencies (ICAO, 2021)

Krahnen (2022), Most important strategic human resource factors that affect implementation of safety management in the aviation industry include: Decision-making, Communication and effective Teamwork: The aviation industry being one of the most safety-critical industries in the world it is essential to have a strong focus on human competencies. However, the current state of human competencies in the Kenyan aviation industry is mixed. There are some highly skilled and experienced professionals working in the industry. Hence, there are also a number of gaps in human competencies (ICAO, 2020)

Situational awareness (SA) is the ability to perceive the elements of one's environment and to understand their meaning and implications. It is a critical skill for aviation professionals, as it allows them to make informed decisions in real-time National (Transportation Safety Board 2019). In the aviation industry in Kenya, SA is essential for the implementation of safety measures. For example, flight crews need to be aware of the weather conditions, the aircraft's status, and the other aircraft in the vicinity in order to make safe decisions. Similarly, ground personnel need to be aware of the aircraft's location and the status of the maintenance work in order to ensure that the aircraft is safe to fly (World Health Organization,2019). There are a number of challenges to maintaining safety assurance, but there are also a number of ways to improve it by addressing these challenges and taking steps to improve safety assurance, the aviation industry in Kenya can continue to operate at a high level of safety.

Effective human communication is essential for the implementation of safety measures as it allows aviation professionals to share information, coordinate activities, and make informed decisions(Alaminos, 2021). Effective human communication can be used to identify and mitigate risks and ensure that everyone is working towards the same goal of safety on timely manner. Therefore, Communication is essential for the implementation of safety measures in the aviation industry in Kenya as it can help to improve situational awareness, reduce errors, and improve decision-makin (NTSB, 2019).

The implementation of safety measures in the aviation industry is influenced by various psychophysical parameters. Psychophysical parameters refer to the human factors and cognitive processes that affect an individual's perception, decision-making, and behavior (ICAO, 2021). These parameters can include but are not limited to Human Error, which is a significant contributor to aviation accidents and incidents. Understanding the underlying causes of human errors, such as cognitive biases, fatigue, and stress, is essential for developing effective safety measures.

According to Njagi et al.,(2018) the safety culture within an aviation organization also plays a critical role in determining the priority given to safety, the reporting of safety-related incidents, and the willingness to implement safety measures effectively (Chebiego & Kariuki (2018).

The effectiveness of safety measures is also influenced by the aviation regulatory framework in Kenya, including the standards and guidelines set forth by the Civil Aviation Authority. Further, the introduction of advanced technologies and automation in aviation can impact human-machine interaction and introduce new safety challenges that need to be addressed (Hajduova, Szajt and Bobenič,2020)..

1.1.4 Profile of Kenya Kenya Airports Authority

The Kenya Airports Authority (KAA) was established in 1991 through the KAA Act (Cap 395) of the Laws of Kenya, with the mandate to oversee the management and development of airports in Kenya (Kenya Airports Authority Act, 1992). The Kenya Airports Authority manages several key airports in Kenya, including Jomo Kenyatta International Airport (Nairobi), Moi International Airport (Mombasa), Eldoret International Airport, and Kisumu International Airport, among others

The Kenya Airports Authority (KAA) therefore is a government agency responsible for the management and development of airports in Kenya(ICAO, 2021). It plays a crucial role in connecting the country to the global market, ensuring the safety and security of aviation operations, and contributing to Kenya's economic development. KAA operations are guided by national and international aviation standards and regulations, and it continues to invest in infrastructure, technology, and sustainability initiatives to enhance its services and impact on the aviation industry

Kenya Airports Authority is responsible for the development and maintenance of airport infrastructure, including runways, terminals, aprons, and air navigation facilities. They undertake projects to modernize and expand airports to accommodate increasing air traffic. Kenya Airports Authority places a strong emphasis on safety and security at airports. They work in compliance with international aviation safety and security standards set by organizations like the International Civil Aviation Organization (ICAO,2020) to ensure the safety of passengers and aviation operations. In line with global environmental concerns, Kenya Airports Authority has taken steps to make airports more environmentally friendly. This includes initiatives to reduce carbon emissions, manage waste, and conserve energy (Kenya Airports Authority Sustainability Report, 2020).

1.1 **Statement of the Problem**

The importance of implementing more robust safety management system in the aviation industry cannot be emphasized as it leads to: better safety culture, improved safety in operational environment, better compliance results, fewer accidents and incidents, less unacceptable safety incidents, better safety-decision making, more safety data, improved safety documentation and better performance on inspections/audits.

There are previous studies that have examined issues related to safety management measures in the aviation industry, for example In Vietnam, Hang, Hiep, Nguyen and Hùng (2021) analysed the relationship between safety management measures and firm performance and concluded that there existed a significant relationship between the two variables however the study did not consider consider situation awareness Hoglund, Caicedo, Martensson and Svardsten (2018) in Sweden presented a qualitative case study on how safety management measures has been applied in the Swedish Transport Administration (STA), including the tools used and concluded that effective safety management measures is pivotal to transport industry Creatining a contextual gap.In South Africa, Jaleha et al., (2018) researched on the impact of safety management measures and performance of business organizations in South Africa. The study advanced that safety management measures is directly and indirectly positively associated with organizational performance. Njeru (2016) who examined the determinants of aviation training performance, case of Kenya aviation training institutes, Mokaya and Nyaga (2019) assessed the factors that affect the

successful implementation of safety management measures (SMM) in the Aviation industry in Kenya while Mokaya, Chocho and Kosgey (2009) sought to assess the performance of the aviation regulatory system in Kenya with specific reference to the Kenya Civil Aviation Authority. It is against this background that this study sought to examine the effects of strategic human resource factors on implementation of safety management measure in the aviation industry with special focus on Kenya Airports Authority.

1.4 General objective

The general objective of this study was to examine effects of strategic human resource factors on implementation of safety management measures in aviation industry in Kenya. **A** case study of Kenya Airports Authority

1.5 Specific Objective of the Study

The specific objectives of the study were to:

i) Assess the effect of human competencies on implementation of safety management measures in aviation industry in Kenya.

ii) Analyze the effects of situational awareness in the implementation of safety management measures in the aviation industry in Kenya.

iii) Examine the effects of human communication on the implementation of safety management measures in the aviation industry in Kenya.

iv) Investigate the effects of psychophysical parameters on the implementation of safety management measures in the aviation industry in Kenya.

1.6 Research Hypothesis

Ho_1 Human competency has no significant effect on the implementation of safety management measures in the aviation industry in Kenya

Ho_2 Situational awareness has no significant effect on the implementation of safety management measures in the aviation industry in Kenya

Ho_3 Human communication has no significant effect on the implementation of safety management measures in the aviation industry in Kenya

Ho_4 psychophysical parameters has no significant effect on the implementation of safety management measures in the aviation industry in Kenya

Ho_5 Human competencies, situational awareness, human communication, and psychophysical parameters have no significant effect on the implementation of safety management measures in the aviation industry in Kenya.

1.6 Significance of the study

The study was to contribute to a better understanding of how human factors, including human competencies, situational awareness, human communication, and psychophysical parameters, affects the implementation of safety measures in the aviation industry in Kenya. The findings could inform the development of targeted interventions and strategies to enhance safety measures and promote a robust safety culture within the Airports managed by Kenya Airports Authority and the broader aviation industry.

The study findings was to benefit the Kenya Airports Authority, aviation safety policy makers and administrators as it may help them understand the human resource factors affecting the implementation of Safety management measures and guide them in identifying and finding solutions to address the associated challenges.

Further, the study findings was to provide important information that can be integrated by aviation stakeholders to improve Kenya's aviation safety record. The Ministry of Transport and Infrastructure may use the findings to review aviation regulations and policies with a view to inculcating an aviation safety culture.

Donors and international aviation bodies may use the outcomes of the study to identify and establish programmes that can be tailored towards specific challenges facing aviation safety in Kenya. Researchers, academicians and aviation stakeholders can use the findings and recommendations of this study as a reference.

1.7 Scope of the Study

The study sought to examine the effects of strategic human resource factors affecting the Implementation of safety management measures by Kenya Airports Authority. The study was carried out at Jomo Kenyatta International Airport - Nairobi and Moi International Airport - Mombasa, which are the major airports in Kenya for a period scope-covering year 2024. In particular, the study examined the effects of human competencies, situational awareness, human communication, and psychophysical parameters on the implementation of safety management measures in the aviation industry in Kenya.

1.8 Delimitations of the Study

The complex and dynamic aviation environment requires that aviation regulators, air operators, and service providers cooperate to maintain a safe air transport system (Dannatt, 2006). However, this study was bound to the Kenya Airports Authority, because it is an Aerodrome Operator and plays a crucial role in the aviation industry especially now that the air transport has increased steadily over the past years with passenger numbers and freight traffic growing by 45% and 80%, respectively.

1.9 Limitations of the Study

Regarding the confidentiality of their feedback, a few respondents expressed concerns. Safety oversight officers may also have find it difficult to react quickly due to their hectic schedules. The surveys were created with anonymity in mind to prevent respondents from feeling pressured to give false information in order to address these issues. To further accommodate the respondents' busy schedules, the questionnaire was designed with concise and straightforward questions to reduce the amount of time needed for answers.

1.10 Assumption of the Study

The study assumed that;

The study respondents were conversant with the factors influencing aviation safety in Kenya. The respondents were cooperative and honest in giving the required information. They were free of fear or intimidation when giving feedback

1.11 Theoretical framework

Scholars have come up with various theories; hence the study will be guided by the following theories.

1.11.1 Human Capital Theory

Schultz developed this theory in 1961 and gave a view that within a company, value addition by individuals may be a contribution to greater organizational performance. The theory puts an emphasis on ways in which the employees' efficiency and productivity is increased by education by enhancing the cognitive stock level of economically productive individual a capacity – a result of innate investment and abilities in people. People are considered as assets by this theory and not a cost within the firm. Human factor in the firm is represented by human capital; expertise, skills and intelligence combined giving the firm its distinct character.

Providing formal education is viewed as investing in human capital, which the theory's proponents have regarded as even as or equally more worthwhile than the one for physical capital (Olaniyan and Okemakinde, 2012).

This theory is applicable to the study as it relates to the role of human competences in the implementation of safety measures in the aviation industry. Employee training is one of the ways of enhancing employee ability to discharge their duties hence better in implementation of safety measure in relation to human capital competences. In the event of emergencies or unforeseen circumstances, the skills and training of aviation professionals become critical. Well-prepared human capital is essential for effective emergency response, potentially preventing catastrophic accidents.

1.11.2 Dynamic Capabilities Theory

Teece, Pisano and Shuen (1997) developed the concept of dynamic capabilities as the ability of the organizations to renew competencies so as to attain congruence with the changing business environment by adapting, integrating, and reconfiguring internal and external organizational skills, resources and functional competencies. They therefore defined dynamic capabilities as the ability to integrate, build, and reconfigure internal and external competencies to address rapidly-changing environments. Barreto (2010) defines dynamic capabilities as those capabilities that characterize a firm's potential to systematically solve problems, formed by its propensity to sense opportunities and threats, to make timely and market-oriented decisions, and change its resource base. Zollo and Winter (2002) indicate that the purpose of dynamic capabilities is to improve organizational performance, while Zahra, Sapienza and Davidsson (2006) explained that the purpose of changing the resource base is to support the requirements of principal decision-makers of a firm. Wang and

Ahmed (2007) explicitly state that the purpose of reconfiguration, reconstruction and upgrade of a firm's resource base is to respond to the changing environment in order to attain and sustain competitive advantage.

According to Teece (2007), dynamic capabilities can be subdivided into three capabilities. These are: sensing capabilities (the capacity to discern opportunities and threats); seizing capabilities (the capacity to grasp opportunities); and reconfiguration capabilities (the capacity to maintain competitiveness by enhancing, combining, protecting, or reconfiguring intangible and tangible assets). Capabilities are transformed in generally six ways (Teece, 2007). They can be renewed, redeployed or recombined. They also can be replicated, retrenched or retired. The influence of managerial decision making in the selection activity that is responsible for capability transformation highlights the importance of sensing, seizing and transforming capabilities (Teece, 2007). Sensing, seizing and reconfiguration or transforming capabilities will enable management to better interpret opportunities and threats, which will in turn guide the decisions on whether to renew, redeploy, recombine, reconfigure, replicate, retrench or retire capabilities (Teece, 2007).

Researchers such as Eisenhardt and Martin (2000); Helfat *et al*. (2007) and Teece (2007) argue that dynamic capabilities represent an organization's capacity to identify the need or opportunity for change (sensing), formulate a response to such a need or opportunity (seizing), and execute a way of action (reconfiguring). The bridge between sensing and seizing is also understood to involve acquisition of strategic insights, whereas the relationship between seizing and reconfiguring refers to strategy execution (Helfat *et al*., 2007). The underlying assumption of the dynamic capabilities theory is that companies which are able to sense and then seize new opportunities and, further, reconfigure their resources and capabilities in line with recognized opportunities and environmental change can create and sustain a competitive advantage (Teece, 2012). Li and Liu's (2014) study of 217 companies in China shows that dynamic capabilities significantly and positively affect competitive advantage, and that environmental dynamism is an important driver. Dynamic capabilities theory supports the variable of adhocracy culture by highlighting that those organizations which are able to sense and then seize new opportunities and, further, reconfigure their resources and capabilities in line with recognized opportunities and environmental changes can enhance and sustain desired performance.

The dynamic capabilities theory anchors the situational awareness, human communication and psychophysical parameters variables of the study as it relates to the ability of human resources assigned the responsibilities of implementing and managing safety to sense or discern secure and insecure situations; seize safe situations and advise the airplane crews; and reconfigure unsafe situations

1.12 Conceptual framework

A conceptual framework is important in a research, as it helps in making the conceptual distinction and in the organization of ideas. In this study strategic human resource factors formed the independent variable as it effects on implementation of Safety management measures in Aviation industry which forms the study' dependent variable. The main independent variables are Human competencies, Situation awareness, Human communication and Psychophysical parameters. Based on the conceptual framework the effect of strategic human resource factors on implementation of Safety management measures in Aviation industry will be established.

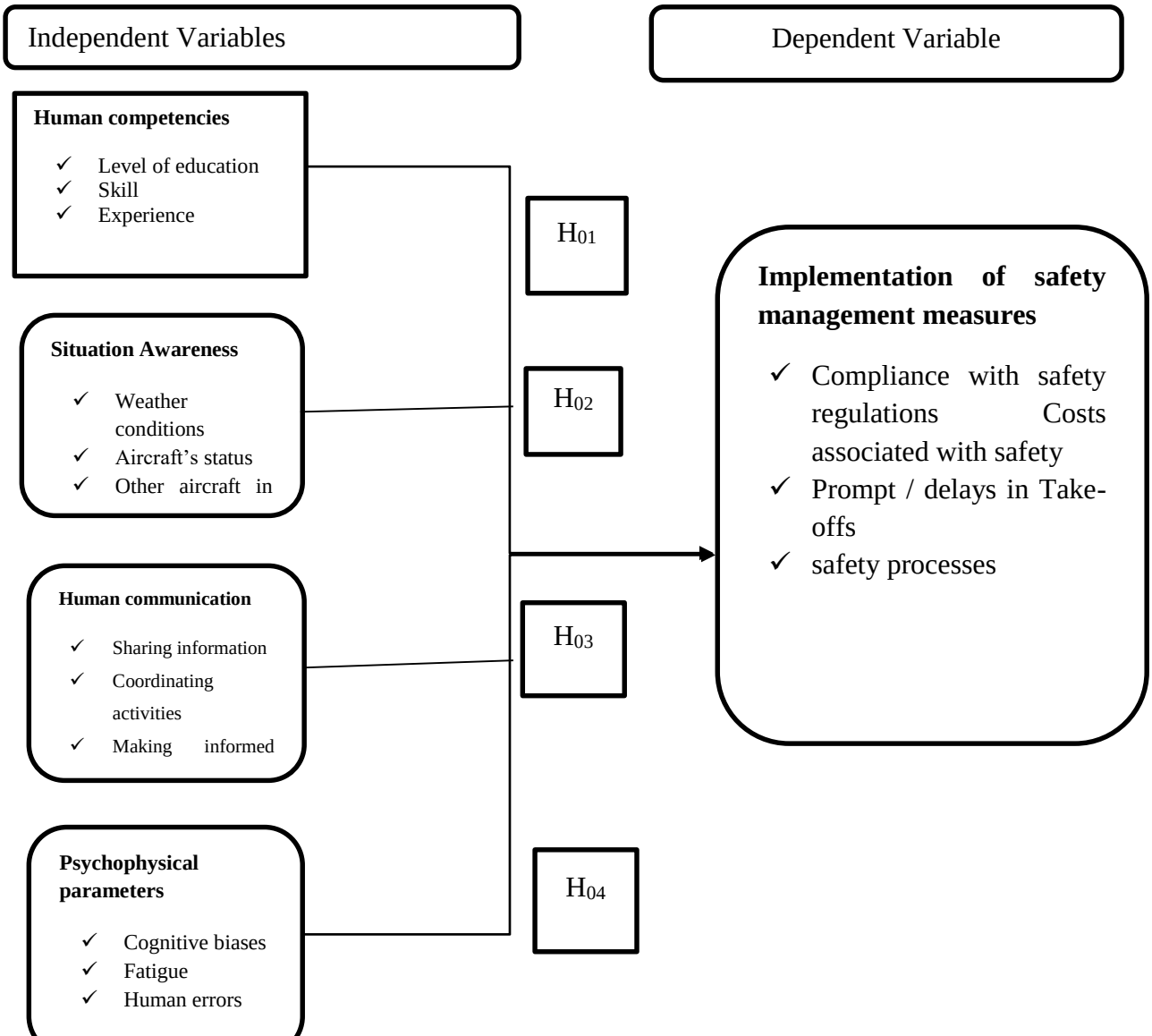


Figure 1: Conceptual framework

CHAPTER TWO:LITERATURE REVIEW

2.1 Introduction

This chapter provides review of the relevant literature to the study. Empirical insights into the study are provided, a critique of the literature review and a summary of the research gaps.

2.2 Implementation of Safety Management Measures in the Aviation Industry

Foster and Adjekum (2022) noted that safety management regards the activities and processes for achieving safety goals in a systematic manner and can be interpreted as a set of organizational controls for safety. It is the process of identifying and analyzing safety hazards, assessing the risks associated with those hazards, and determining appropriate mitigations to reduce the risk to an acceptable level. It involves a structured and systematic approach to identifying, analyzing, and assessing safety risks. This process allows organizations to prioritize safety risks based on their likelihood and severity, and determine the appropriate mitigations to reduce the risk to an acceptable level. The Safety Risk Management process typically involves four steps: hazard identification, risk analysis, risk evaluation, and risk control, and by proactively managing safety risks, organizations can reduce the likelihood and severity of accidents and incidents, enhancing safety performance (Nguyen, & Hùng, 2021)..

Nguyen, and Hùng, (2021)..introduced the concept of Safety and defined it as the ability of a system to achieve its objectives under varying conditions. Safety Assurance is the process of monitoring and verifying that the safety performance objectives are being met and that the safety risk management process is effective. Safety Assurance involves ongoing monitoring and evaluation of safety performance to identify areas for improvement and ensure compliance with regulatory requirements and best practices. Safety Assurance typically involves several activities, including safety performance monitoring, safety audit, and safety management system review (ICAO 2013). Safety performance monitoring involves the collection and analysis of safety data to identify trends, patterns, and potential safety issues. By regularly conducting safety information and assurance activities, organizations can identify areas for improvement, ensure that the Safety Risk Management system is effective, and demonstrate their commitment to safety to regulatory authorities and stakeholders. Safety Promotion is a vital component of a Safety Management System in aviation, as it aims to create a safety culture within the organization by promoting safety

awareness and encouraging safe behavior. This process involves a variety of activities, including training, communication, and other actions that help foster a positive safety culture at all levels of the organization. Mura,(2020) by promoting safety within the organization**,** safety becomes an integral part of the organization's overall culture, and safety becomes a shared responsibility among all employees.

Chebichii,(2021) the entirety of norms, values, and practices with respect to safety and risk by people in an organisation forms an important foundation for the effectiveness of its safety management and the level of safety that can be achieved in its operational conduct . As such, safety culture is at the core of the human contributions to safety in any air transport organisation. Understanding the weaknesses and strengths in an organisation's safety culture and effecting means to support weaker aspects are key contributions towards avoiding safety occurrences

However, organizations and, in particular, their leaders always keep an eye on developing safety culture and ensure they are keeping up with their peers and competitors. A safety maturity culture scheme is therefore one way in which organizations can perceive that they can do better, and if such cultures are backed up by regulators, then there can be an industry-wide drive to "raise the bar" in areas where there are common weak spot(Kimiti & Kilika 2022). This has to an extent already happened in air traffic organizations (particularly in Europe) in the field of safety culture, which was brought into the existing safety maturity schemes, and now almost all Air Navigation Service Providers (ANSPs) in Europe carry out periodic safety culture surveys(ICAO Report, 2021) .

The potential for disaster exists everywhere, and there is resultant devastating cost: suffering and loss of life, however, there is growing concern over increasing aviation-related disasters globally. Most of these disasters occur when aviation and related businesses around airports fail to continuously asses the Security preparedness and adherence to safety management measures thus posing enormous risk and dangers to the immediate precincts as well as to adjoining airports (Kwiatkowski, 2021). Preparedness requires time and finances and the predictive power or validity of safety process metrics has to be demonstrated through empirical evidence or inferred through credible reasoning (Wreathall, 2019). However, there is limited scientific evidence for the relation between safety outcome metrics and safety process metrics (Reiman & Pietikäinen 2022), although

in other industries such as occupational and process safety, evidence was found (e.g., Lardner, McCormick, & Novatsis, 2021) Though aviation disasters occur worldwide, there is special concern for aviation disasters in Africa (Kwiatkowski, 2021). Di Gravio, Manchini, Patriarca, and Krahnen,(2022) proposed a statistical analysis of safety events based on Monte Carlo simulation and weighing of factors, as means to develop proactive safety indicators.

There is need for aviation security and safety to be a major concern for all governments around the world however,(Stolzer, & Goglia, 2019) pointed out that safety management is often linked to safety culture. International, national and professional group norms and cultures may influence acceptable risks (ICAO 2013), while the perception of safety might differ from the officially accepted risk levels. Widodo , (2021) In practice, the sense of safety is often eradicated in the wake of adverse events which mandate actions to prevent reoccurrence, regardless the maintenance of acceptable risk levels.

Although statistics show low rates of accidents (e.g., ICAO, 2020), safety remains challenged in daily operations as indicated by the safety data collected through various initiatives e.g.(voluntary reports, flight data monitoring, audits). To further improve safety, new international and regional guidance and regulations for safety management have been set (e.g., ICAO, 2013; FAA, 2013; EASA, 2014; EC, 2014). Proactive safety relies heavily on the use of relevant data from day-to-day activities and operations; the concept is that processing of such data will allow timely identification and control of new hazards. However, Rose (2022), observed that improved safety and security strategy involve the efficiency of all the measures in the organization while innovativeness is concerned with the ease with which a firm is able to adapt to changing security condition as drivers of future performance.

A holistic view on human contributions to safety is advocated by safety management from a Safety perspective and recognizes that human performance, individually or collectively, is variable, and that such performance variability is indispensable to effectively get the work done in the actual working context of organisations(Alaminos, 2021). The interacting components of an Safety Management relate with the people and processes at the various levels in an organisation including staff, middle management, and executives. In such organisational contexts, safety intelligence aims to ensure that managers have the right information when making decisions that can affect safety.

However, Safety management measures are often observed as being bureaucratic, distinct from actual operations, and being too much focused on the prevention of deviations from procedures rather than on the effective support of safety in the real operational context.

Airport increases the economy of a nation by providing employment globally,for instance in Canada, the airport industry generates $8 billion dollars and provides 150,000 job opportunities annually (Odisho& Joslin,2022). The International Civil Aviation Organization (2021) noted that 2.1 billion passengers travelled by flight globally. This has great influence on global markets. Airport aviation improves global socio-economic development. However, there is growing concern over increasing aviation-related disasters globally and a number of scholars have conducted studies. ICAO (2020) and the European Commission (EC, 2019) mention, the reporting of (serious) incidents primarily aims at finding ways to improve safety rather than depicting safety performance. This leaves only accidents as indications of safety performance, as reflected in the annual safety reports published by various organizations (e.g., ICAO, 2021; Flightglobal, 2019; IATA, 2018; Boeing, 2020).

In Vietnam, Hang, Hiep, Nguyen and Hùng (2021) analysed the relationship between safety management measures and firm performance and concluded that there existed a significant relationship between the two variables. Hoglund, Caicedo, Martensson and Svardsten (2018) in Sweden presented a qualitative case study on how safety management measures has been applied in the Swedish Transport Administration (STA), including the tools used and concluded that effective safety management measures is pivotal to transport industry. Similarly, in Sri Lanka, the influence of safety management measures on e-commerce adoption using postal survey questionnaire and analysing through quantitative analysis methods (Kierszbaum & Lapasset2021). . The study affirmed the existence of a positive correlation between safety management measures and e-commerce adoption. In New Islamabad International Airport in Pakistan analysis, noted that the performance of safety management measures delayed because of inadequate communication and beau acratic procedures (Stetter & Sauer, 2021).

In response to major challenges that Africa faces related to aviation safety, several programs have been developed and implemented by various aviation stakeholders. One of the notable programs developed by ICAO(2020) is the Comprehensive Regional Implementation Plan for Aviation Safety in Africa (AFI Plan) established in January 2008 with the aim to support African States in

addressing aviation safety deficiencies. However in East African Community Civil Aviation Safety and Security Oversight Agency (CASSOA) was established with the support of the AFI Plan and commenced operations on 1st June 2007, as an autonomous self-accounting body of the East African Community following the signing of the Protocol for the Establishment of CASSOA by the three founder Partner States, Kenya, Tanzania and Uganda, on 18th April 2007 during the 5th Extraordinary Summit of EAC Heads of State held in Kampala, Uganda.

Africa will become the world's fastest passenger growth over the next 20 years and will result to deepening regional integration with creation of larger trade zones and linking of Africa to the regional and global value chains implies a high growth potential for freight traffic across the region and beyond(Miller ,2020). Increased air transport connectivity across Africa is necessary to cater for the rising demand for air transport in the region and reducing the cost of trade and travel. However, Africa's aviation disaster record, and the question marks raised especially by key stakeholders in the aviation industry such as KAA, Association of Air Operators and KCAA concerning compliance to aviation standards and regulations in Kenya.

Chhatwal (2020), study in Tanzania indicate that poor preparation and lack of budgetary allocation slowed down the progress of implementation of safety management system on the Julius Nyerere International Airport (JNIA). In Rwanda for instance, the unavailability of finances has also affected implementation of safety management system of the Bugesera International airport.It is evident that safety management system are influenced by some critical factors including availability of finance, stakeholder involvement, and competence of management among other factors(Abraham, 2022).

Adjekum,(2020) Aviation sector in Kenya facilitates both international and domestic trade, promotes tourism and foreign investment thus contributing to government revenue and employment opportunities. However,a study by Odhiambo and Kaibui (2018) noted that in Kenya, lack of involvement of stakeholders impacted the execution of air safety projects by the Kenya Airports Authority (K.A.A). However, Odhiambo and Kaibui (2018) observed that most Airport Authorities in developing countries do not involve stakeholders, and some managers in the aviation industry are lacking in skills and competencies necessary to manage stakeholders involved in

safety manage. Consequently, the airports are characterized by incidents contributing to failure to achieve desired outcomes

In the last two decades, Kenya has witnessed a number of fatal aviation disasters and reports on inquiries into these disasters have pointed to poor aviation environments and non-compliance with international aviation standards and regulations (Mokaya and Nyaga, 2019). Despite the increase in threats to airports safety challenges in Kenya, the Kenya Airports Authority, in response to the national developmental goals envisioned in the Kenya Vision 2030, has put in place measures to ensure Kenyan airports operations meet international safety and security requirements to meet the international standards including infrastructural facilities, communication facilities, and security checks (Hudson, 2019). To achieve this, the Authority needs to augment its capacity to deliver quality regulatory oversight services and ensure its compliance to international airports regulations (Kenya Vision 2030 Blueprint, 2019).

2.2.1 Human competencies and Implementation of safety management measures

Competence is referred to as a set of explicit knowledge and skills, awareness of implicit social roles, self-concepts, traits, and motivations inherent in an individual., competency is a criterion that encompasses the work behaviour, motivation, and knowledge that an individual needs to demonstrate in ensuring the effectiveness of one's job, role, and job function. Furthermore, competency refers to the knowledge, skills, and attitudes which is crucial to the successful implementation of a task. This is due to the fact that a worker's competencies can influence their work performance (Chang, Chen & Wu, 2012). Moreover, competencies can influence individual's behavior, for which lower competencies can lead to mistakes and negative outcomes (Li, Fan, & Wu, 2018).

Nwankwo (2017) in a study about the effect of human capacity building on organizational performance in Nigeria, asserted that capacity building to enhance human competencies has a strong effect on the performance of an organization. The study recommended that in order to strengthen human competencies, through capacity building , there was need for re-orientation and sensitization of organization staffs in order to enhance their knowledge on the importance and benefits of human competencies, however this study ignored psychophysical parameters which affects the human competencies which current study is going to factor.

Nwachukwu and Chladkova (2019) conducted a research on strategic analysis of human competencies and strategic performance of telecommunication firms in Nigeria. The study established that human competencies have a positive and significant relationship with performance of telecommunication firms in Nigeria. Additionally, organization structure moderated the relationship between human competencies and strategic performance. The study found that by recognizing the impact of organizational structure on human competencies can significantly enhance strategic performance however, this study was conducted in telecommunication firms while current study is in the aviation industry.

Strategic human competency in terms of leadership on the operational strategy and performance of business organizations in South Africa study advanced that strategic leadership is directly and indirectly positively associated with operational strategy and organizational performance Hintošová & Bobenič,2020).. The findings further showed that focusing on human competencies by keeping the employees positive and empowered continually improved performance in the workplace. This enabled the organization to be aligned to the dynamics of the environment and enhanced the ability to compete, survive and perform in a competitive environment; however, the study ignored the importance of communication, which enhances information sharing, and teamwork, which is factored in the current study

Strategic leadership among human competencies as one of the key drivers of performance in public organizations in Kenya, a study by Hassan and Maitlo (2020)concentrated on the role of strategic leadership in strategy implementation at the Agricultural Development Corporation (ADC) in Kenya, and found that strategic leadership played a very critical role in effective implementation of strategy at the corporation. However, this study was in Agricultural Development Corporation but the current study is on Aviation industry

Kabetu and Iravo (2018) carried out a study on the influence of human competencies in terms of strategic leadership on performance of international humanitarian organizations in Kenya, where the study recommended training and capacity building of employees through on the job training. The study findings concluded that strategic leadership establishes coherence in the operations of the institution but ignored the critical role played by effective communication between leadership and employees. Kariuki and Nguyo (2020) reviewed the moderating role of industry environment

on human competencies and performance of large manufacturing firms in Kenya. The findings showed that industry environment had statistically significant moderating effect on combined effect of human competencies, culture and organization performance but the study was on manufacturing sector while current study focuses on Aviation industry.

Hassan and Maitlo (2020) conducted a study analysing the impact of crew training and safety management system on operational management in Aviation Industry as part of enhancing human competencies in Pakistan and established that strategic leaders should take remedial measures to work out on factors that may augment aviation safety management. However, ignored role of effective communication, which lead to information sharing among employees reducing the effects of psychophysical parameters, which affects the human competencies. The current study is going to factor psychophysical parameters.

2.2.2. Situation awareness and Implementation of safety management measures

Situational awareness (SA) is the ability to perceive the elements of one's environment and to understand their meaning and implications. It is a critical skill for aviation professionals, as it allows them to make informed decisions in real-time National (Transportation Safety Board 2019). Rugumamu (2021) noted that staff capacity building strategies enhances the ability of the staff to understand their working environment and adopt to changes as they arise. This strategy has been widely adopted in donor development projects where situation awareness is critical as deliverables are enormous and time is limiting. Situation awareness can be achieved through staff empowerment and skills development due to dynamic working environment. In the aviation industry, situation awareness is more critical due to the sensitivity and the level of risks in the industry, current study will give more insight on situation awareness in the aviation industry bridging the contextual gap.

Alnidawi, Alshemery and Abdulrahman, (2019), study findings revealed that to enhance situation awareness in an organization, employees need to be skilled properly and adequately in order to enhance their ability to perceive and project in the organization through resources including capital, machine, and any other human resources. Insufficient perception of situation awareness occasions tension between management and the workers when unexpected risks strikes and consequently influence the organization’s performance negatively. Advocacy of situation awareness recommends; skills development as they play a significant role in every organization’s

excellence. Situation awareness is widely used to gain competitive advantage in a dynamic environment (Zakikhani et al., 2020). The studies reviewed ignores the critical roles played by effective human communication and psychophysical parameters which significant influence on employee's ability to pro- actively respond to different situation in a dynamic environment, which is factored in the current study.

Ondřej (2018) study revealed that capacity building is critical in improving skills to enhance effective situation analysis to facilitate solving problems, defining and achieving organizational objectives amid dynamic environment. Further, the findings recommended that capacity building should focus on human resources development, denoting training coaches; organizational development, being integrating life skills training in processes and programs. Human resources development aims at improving expertise and skills of employees to cope up with changing environment. At the individual level, capacity building involves finding information, gaining insights, changing perceptions, values, and practical skills, as well as attitude and style to make informed decisions in real-time (Zakikhani et al., 2020).

Kimiti and Kilika (2022) studied industry velocity and firm performance in a dynamic environment and observed that situation awareness plays a critical role the diverse perspectives on the firm performance in high velocity industry context. The study found that firms performance was erratic in highly dynamic environments hence the need to constantly conduct situation awareness using firm capabilities through internal factors. The influence of the external environment has a significant influence on firm's performance. The study recommended need for constant situation awareness before making decisions to avoid partial where only a portion of the environment is actually perceived and interpreted by strategic decision makers through the selective cognitive process. The current study will also incorporate psychophysical parameters that affect an individual's perception, decision-making, and behavior in a high velocity industry context not captured by the study reviewed.

2.2.3 Human communication and Implementation of safety management measures

Human communication is a process by which individuals exchange information and influence one another through a common system of symbols and signs. Effective human communication is essential for the implementation of safety measures as it allows aviation professionals to share information, coordinate activities, and make informed decisions (NTSB, 2020). Communication

is critical for the implementation of safety measures in the aviation industry as it can help to improve situational awareness, reduce errors, and improve decision-making (NTSB, 2020). Chebiego and Kariuki (2018) studied the strategic firm communication and performance of manufacturing firms in Kenya, a case of Unilever Kenya Limited. The study postulated that effective communication by top leaders boosted the effectiveness of organization and competencies contribute to enhanced employee performance and organizational success but did not consider psychophysical parameters, which affects communication within and among the employees like conducive working environment, which is captured in the current study.

In Vietnam, Hang, Hiep, Nguyen and Hùng (2021) analyzed the relationship between organizational communication and firm performance and concluded that there existed a significant relationship between the two variables. However, the current study will conduct an analysis how the same variables would relate in the content of safety management system in the aviation industry in Kenya.

Tabo (2013) undertook a study on challenges of strategy implementation among the private security companies in Kenya. The study targeted private security companies registered with Kenya Security Industry Association. The study disclosed that implementation of strategies in Kenyan private security firms experienced delays in completion; there was poor and lack of proper communication among internal stakeholders and employees lacked the requisite human competencies due to inadequate training. The context of the study was on security firms and factored only communication and human competencies but the current study is in aviation industry and broadens content scope by incorporating psychophysical parameters factors, which may influence implementation of safety management measures.

Similarly, in Sri Lanka, Zakikhani and Ahmadi (2020)studied the influence of organizational communication on e-commerce adoption using postal survey questionnaire and analyzing through quantitative analysis methods. The study affirmed the existence of a positive correlation between organizational communication and e-commerce adoption. The current study focus is on communication in the aviation industry which was not analyzed in the that study

Karimi, Mulwa and Kyalo (2021) study on role of communication in monitoring and evaluation and performance of literacy and numeracy educational programme in public primary schools in

Nairobi County, Kenya. The overall findings indicated that there was a statistically significant relationship between communication and performance of literacy and numeracy educational programme. The research suggested that effective communication from top management is critical element in monitoring and evaluation process, and it must be observed at all stages to ensure information sharing to all stakeholders in the implementation of educational programs. This study-analyzed communication in the context of implementation of education programs while the current study will analyze role of communication in the implementation of safety management system in airport authority.

Alnidawi et al., (2019) study revealed that enhancing effective communication in an organization starts with the planning process and it involves information sharing, sensitization of staff by definition of roles and duties for current and future structures. Information sharing through effective communication puts into consideration the projected growth by identifying the current and future needs of the organization. Effective communication represents an important part in the development of staffing plans which can be accomplished by developing job descriptions to lay out the positions required within the organization to meet various responsibilities Organizational communication aims at strengthening an organization's capacity, increasing the capacities of staff so that it can achieve its goals and fulfil its mission. However, this study ignored psychophysical parameters such as cognitive processes that affect an individual's perception, decision-making, and behavior which will be considered in the current study (ICAO, 2021).

Shillingi (2022) conducted a study on the influence of organizational communication on implementation of strategic plans in Tanzania's executive agencies. The study established that majority of the respondents agreed that organizational communication has influence towards fostering execution of strategic plans in Tanzania's public sector. Nkosi (2019) similarly highlighted the crucial role of communication in the study on factors affecting strategy implementation in a local municipality in Mpumalanga Province, South Africa, where lack of effective communication was a significant challenge in strategy implementation. Gaotlhobogwe (2018) held similar observation in a study on effective communication on performance of schools in Botswana, which showed that there was a significant relationship between effective communication of management and staff on school performance. There is context gaps as both

studies in different sectors different from the context of the current study, which is in the aviation industry

2.2.4 Psychophysical parameter and Implementation of safety management measures

Psychophysical parameters refer to the human factors and cognitive processes that affect an individual's perception, decision-making, and behavior (ICAO, 2021).. Hoglund, Caicedo, Martensson and Svardsten (2018) study in Sweden presented a qualitative case study on how psychophysical parameters has been applied in the Swedish Transport Administration (STA), including decision making in strategy implementation. The study found that firm related human factors like lack of motivation and stress did not significantly influence strategy implementation; instead, factors related to industry structure and business groups' membership were the strongest determinants of firm performance. The study was on transport administration but current study will investigate psychophysical parameters in the aviation industry in relation to implementation of safety management measures.

In Romania, Virgiawan (2021).carried out a study on the determinants of safety management system in listed firms within the framework of resource-based view of the firm. The study concluded that safety management system might be affected by human errors, such as cognitive biases, fatigue, and stress, which are critical for developing effective safety measures. The study found that other key factors that have the most impact on safety management system of listed companies were intangible resources, culture and communication. Results have supported these findings to some extent, with communication and culture being the most important factors determining implementation of safety management system. Theoretically the concept of dynamic capabilities as the ability of the organizations to renew competencies so as to attain congruence with the changing business environment by adapting, integrating, and reconfiguring internal and external organizational skills, resources and functional competencies developed by Alves, Carvalho and Albuquerque (2019) will be adopted instead of resource based view

Fardnia, Kaspereit, Walker and Xu (2020) conducted a study that focused on the influence of safety in the Aviation Industry. While the study underscored the relevance of financial ability concerning implementation of safety in the Aviation Industry, the current study will focus on strategic human resource factors and how it will affect implementation of safety management measures in the aviation industry in Kenya. Naeem (2018) compared safety management system

and its perceptions on safety culture in Pakistani. The study utilized a survey methodology urged for further research work to explore and excavate deeper into the psychophysical parameters issues raised in this research, the current study focus on those issues raised

Byrnes et al., (2022), carried out a longitudinal study of the effects of safety crises on safety culture in the aviation industry. The study suggested that various safety culture and safety climate variables were impacted during the COVID-19 pandemic. The study findings recommended that aviation managers should be able to mitigate and adjust safety policies and procedures to improve the safety culture and climate. This will ensure continuous accident-free environment and improve performance. The study undertook quantitative research approach suggesting an apparent gap in an approach with the current study which will apply a combined qualitative and quantitative research methodologies as applied by Foster and Adjekum (2022).

2.3 Summary of Review of Literature and Research Gap(s)

Most studies in safety management measures are conducted primarily on implementation of Safety Management System without a great deal of how strategic human resource factors influence the implementation process. Further, the studies were conducted in different sectors, Nwachukwu and Chladkova (2019) telecommunication firms in Nigeria; Byrnes et al., (2022), of business organizations in South Africa;, Chebichii(2021)),public organizations in Kenya; Warren, Yeoh and Salzman (2014) studied the influence of organizational communication on e-commerce adoption in SriLanka; Kabetu and Iravo (2018) international humanitarian organizations in Kenya. . Hassan and Maitlo (2020), impact of crew training and safety management system on operational management in Aviation Industry;, Kimiti and Kilika (2022) industry velocity and firm performance and considered only situation analysis .Most of regional studies considered only one strategic human factor, Shillingi (2022) organizational communication on implementation of strategic plans in Tanzania's executive agencies; Naeem (2018) safety management system and its perceptions on safety culture in Pakistani;, Nyagudi, (2021) sought to assess the performance of the aviation regulatory system in Kenya with specific reference to the Kenya Civil Aviation Authority. None of the reviewed study has been carried out to the researcher's knowledge to comprehensively assess together all the strategic human resource factors captured by the current study. It is against these gaps that this study will be conducted to highlight pertinent issues

influencing the strategic human resource factors and implementation of safety management measures in the aviation firms in Kenya.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter articulates the methodology the researcher used in conducting the study. It covered the methods and design that were utilized by the researcher in undertaking the research. It also explained the study population putting forward their appropriateness for choice in the study. The chapter also presented sampling procedures, research instruments, data collection procedures, data analysis procedures and presentation

3.2 Research Design

(Ji et al., 2023) argues that a study design lays out an outline or the plan, which can be utilized in generation of the answers to address the problem under study. It represents the arrangement of the various conditions under the study and analyses them to obtain the relevance of the study being conducted (Hofman et al., 2021). The study used explanatory research design to identify the link between the factors that relates to the research problem. Hence the research design was appropriate for the study as it sought to determine whether there was a cause and effect relationship between strategic human resource factors and implementation of safety management measures in the aviation Industry.

3.3 Target Population

The target population is the total number of objects that the researcher wishes to study and draw conclusions from (Amaya et al., 2021). The target population of this study consisted of senior management, Airport Managers, Operations (GFS, Bird Scout & Fire), Security Service and Safety staff drawn from departments directly dealing with safety implementation measure from the two major airports (Jomo Kenyatta International Airport - Nairobi and Moi International Airport – Mombasa).

Table 3.1: Target Population

SN	Population Category	Frequency	Percentage
1	Senior & Airport Management	15	1
2	Operations (GFS, Bird Scout & Fire)	349	35

3	Security Service	621	63
4	Safety staff	8	1
	Total	**985**	**100**

Source: **Kenya Airports Authority, Human Resource Department Staff establishment (2023)**

3.4 Sampling Technique

The study used stratified random Sampling. Stratified random sampling is adopted when the target population or sampling frame is made up of sub-sets of known size to ensure that the results are proportional and representative of the whole population (Cui et al., 2022). The departments that are directly involved in safety management systems in the airport operations were used to form the strata; .senior management and Airport Managers, Operations (GFS, Bird Scout& Fire), Security Services and Safety staff. The study applied simple random sampling by taking 15% of the target population from each stratum as sample population giving a sample size of 148 respondents. This was in accordance with the recommendation of (Githui, 2022) that a sample population of 10% is adequate.

3.4.1 Sample size

Therefore, the study a sample size was 148 respondents consisting of senior management and Airport Managers, Operations (GFS, Bird Scout& Fire), Security Services and Safety staff. This sample was considered adequate in representativeness of the target population and economical in terms of time and resources. In the study by Olivia, S., Gibson, J., and Nasrudin, R. (2020), on "Indonesia's employment paradox: A comparative macro-micro study," the researchers calculated the sample size using a stratified sampling technique with proportional allocation. They divided the population into distinct strata based on regions and employment sectors to ensure that each subgroup was adequately represented in the sample. The sample sizes for each stratum were determined in proportion to their respective sizes in the total population.

$$\text{Sample size per Category} = \frac{(\text{Total population}}{\text{Frequency of each category}} * \text{Total Sample Size}$$

Table 3.2: *Sample Population*

SN	Population Category	Frequency	Sample Size
1.	Senior management and Airport Managers	15	2
2.	Operations(GFS, Bird Scout& Fire) Staff	349	52
3.	Security Services staff	621	93
4.	Safety Staff	8	1
	Total	**985**	**148**

Source: Researcher (2024)

3.5 Data Collection Instruments.

This study used questionnaires as the main data gathering instruments. The use of questionnaires (Appendix I) in data collection is an appropriate instrument because it gives well-thought answers with great extent of freedom to express their views and suggestions and facilitates efficiency working on large samples. Both open and closed-ended questionnaires cover the variables in the study.

3.5.1 Piloting

Piloting involves preliminary testing of a few items of the subjects in the research instruments (Yucesan et al., 2021). It ensures that perfection in the research instruments is guaranteed through revising them based on the results of the pilot study. This was done on a representative sample of 17 respondents from Malindi International Airport which is not part of the study, which is 10 % of the sample size as recommended by (Githui, 2022). A total of 17 questionnaires were distributed to the selected group to test the reliability, relevance and accuracy of the items or questions in the questionnaire. Any ambiguity that arose in the questions was corrected before the actual data collection took place

3.5.2 Validity of the Research Instrument

Validity of research instruments refers to the measure of how well a test measures what is supposed to measure. Validity determined whether the respondents perceived questions in research instruments the way the researcher intended (Mellinger & Hanson, 2020). Validity is measured in degrees and it is rare that an instrument can be 100% valid. As a process, validation involves collecting andanalysing data to assess the accuracy of an instrument. There are numerous statistical tests and measures to assess the validity of quantitative instruments, which generally involves pilot testing. In order to ascertain content validity, the researcher prepared research instruments and sought expert advice from experts mainly the supervisors guiding in conducting the study. The content and impressions of the research instruments was improved based on their advice and comments where the questionnaires were reframed to suit the study after which the researcher went on with data collection.

3.5.3 Reliability of the Instrument

Reliability of the research instruments refer to its extent to measure what it is supposed to measure yielding the same results with repeated trials under similar conditions. Reliability of research instruments shows the stability and consistency with which the instruments measures concepts (Amirrudin et al., 2021). The reliability of the questionnaire was ascertained by first performing pilot testing. The instrument was subjected to Cronbach's alpha test to check for and improve its internal consistency. Conventionally, the alpha values range from 0 to 1.0 whereby while 1.0 indicates perfect reliability, the value 0.70 is considered to be the lower level of acceptability (Sekaran et al., 2016). The reliability values for each of the variables are presented in Table 4.6 where it is evident that Cronbach’s alpha values for each of the study variables were well above the lower limit of acceptability of 0.70. The findings indicated that human competencies had a coefficient of 0.68, situational awareness had a coefficient of 0.776, human communication had a coefficient of 0.0.889, pysychopysical parameters had a coefficient of 0.742 and human factors had a coefficient of 0.860. The results therefore showed that the questionnaire used in this study had a high level of reliability.

Table 4.6: Reliability Statistics

Variable	Cronbach’s Alpha

Human Competencies	0.768
Situational Awareness	0.776
Human Communiction	0.889
Physchopysical Parameters	0.742
Human Factors	0.860

Source: (Resear Survey, 2024)

3.6 Data Collection Procedures

After the researcher recived the approval of the research proposal by the university, given the permission to proceed with data collection, the researcher sought relevant authorities, the relevant certifications from NACOSTI. The researcher collected data through administration of the questionnaires on face-to-face sessions. The researcher then personally introduced and explain to the sampled and observe the ethical issues related to the researcher in any given study. Based on the nature of the respondents, the researcher administered the instruments differently where those with fixed scheduled were given an appointment sought first, then the research instruments wereadministered directly for immediate action or use of drop and pick technique to afford the respondents sufficient time to respond to the research instruments.

3.7 Data Analysis

Data analysis refers to the process of organizing data into various patterns, categories and descriptive units. Upon collection of data by the researcher, the completeness of the questionnaires was checked in order to ensure that useful data has been retained and the ambiguous and contradictory data has been sufficiently cleaned and interpreted. The respondents' responses reflected in the questionnaires was organized, coded and analyzed using the SPSS version 24. This provided the basis for summarizing the data in a straight forward way, simple and understandable manner. The results was presented in form of frequency tables and described using both descriptive and inferential statistics. The qualitative data was presented using the narrative format to reflect the opinions as presented by the respondents.

The researcher used a simple linear regression and multiple regression models to determine the

nature of relationship between the study variables. The multiple regression model is shown here below:

$$\mathbf{Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + u}$$

Where:

Y= safety management measures

$\mathbf{X_1}$= human competencies

$\mathbf{X_2}$ = situational awareness

$\mathbf{X_3}$ = human communication,

$\mathbf{X_4}$ = psychophysical parameters

$\mathbf{B_0}$ = the constant (y-intercept)

$\mathbf{B_1}$ = slope (regression coefficient) for variable X_1

$\mathbf{B_2}$ = slope (regression coefficient) for variable X_2

$\mathbf{B_3}$ = slope (regression coefficient) for variable X_3

$\mathbf{B_4}$ = slope (regression coefficient) for variable X_4

u = Error term

The linear regression gave an indicator of the nature and strength of relationship existing between the study variables. The researcher then used the results to ascertain the nature and degree of significance of influence of the independent variables on the dependent variable.

3.8 Testing of Assumptions of Multiple Regression

Regression analysis was preceded by diagnostic tests. These include tests for heteroscedasticity, normality, autocorrelation, and multicollinearity. Diagnostics evaluates the goodness fit of the regression model (Feng et al., 2020). They were carried out to assess the underlying assumptions of the regression model. In other words, these tests were performed to determine whether the following assumptions of multiple regression hold: homoskedasticity of the dataset, normal distribution, absence of autocorrelation between independent variables, and absence of multicollinearity.

Durbin-Watson (D-W) test was performed to check whether the independent variables are correlated with each other. The D-W statistical test ranges from zero to four. 2.0 indicates a lack

of correlation between the independent variables. On the other hand, a value below 2.0 denotes a positive correlation, and a value above 2.0 denotes a positive correlation. Therefore, the absence of correlation between the independent variables was ascertained by a D-W value of 2.0. The Shapiro-Wilk (S-W) test, along with the histogram plot of the residuals, was applied to check whether residuals follow normal distribution. This assumption was ascertained when the S-W value was below 0.05. A histogram was drawn to have a visual representation of the residuals. The normal distribution assumption was confirmed when the histogram was fully covered by the normality curve. The variance Inflation Factor (VIF) test was performed to check whether residuals have a constant variance at every point in the linear model. A VIF<10 confirmed that there is a constant variance at every point. The test for heteroscedasticity was applied by generating A Q-Q *(*quantile-quantile*)* plot to have a visual representation of the spread of residuals and check the patterns in the residual versus fitted values plot.

3.9 Hypothesis Testing

Hypothesis testing is a method in statistics used to determine if there is adequate evidence in sample data to draw conclusions about a population. It involves formulating two competing hypotheses, the null hypothesis (H_0) and the alternative hypothesis (H_1), and then collecting data to assess the evidence. Then, a decision is made on whether to reject or not the null hypothesis.

3.10 Ethical Consideration

The investigator pursued ethical approval from the Africa Nazarene University. Likewise, permission from the National Commission for Science, Technology & Innovation (NACOSTI) to carry out the survey was necessary. It was also pertinent for the researcher to get respondents' consent prior to their involvement in the investigation. Respondents were made aware of the fact that their involvement in the enquiry is on voluntary basis and they were free to withdraw from the participation at any stage during the study. Confidentiality and anonymity of the information from the participants was ensured throughout the enquiry period. Contributors were informed that the responses they give will be used for no other purposes than the study. This ensured that they give honest and truthful responses

CHAPTER FOUR: DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter presents the data analysis, interpretations as well as the findings based on the study objectives and their discussions. The chapter presents the general information of the respondents and analysis of the dependent and the independent variables. Descriptive and inferential statistics have been used to analyse the data. The study employed different statistical techniques aided by SPSS version 26 to analyse the data. The data was summarized and presented using tables, pie charts and bar charts. This chapter also describes the diagnostic tests for regression model, testing of hypothesis, reliability and validity of the research instrument, presentation and interpretation of the findings. The main objective of the study was to determine the influence of strategic firm level dimensions on the performance of safety management measured in the Aviation Industry in Kenya.

4.2 Characteristics of the Respondents (or the Subject of the Study)

4.2.1 Response Rate

The study had a sample of airport service providers in Kenya. All selected respondents were issued with questionnaires for data collection, but the researcher was able to receive back only 141 questionnaires. The returned questionnaires formed a response rate of 95.3% as indicated in Table 4.1. (Alseekh et al., 2021) postulated that a for analysis and reporting, a response rate of 50% or above is ideal; a rate of 60% is adequate; and a rate of 70% or higher is outstanding. Because the response rate was higher than 70%, it was deemed exceptional and was used for additional reporting and analysis.

Table 4.1: Response Rate

Questionnaire		Frequency	Percentage
Returned		141	95.3
Not returned	7		4.7
Total		**148**	**100**

Source: Survey conducted in the aviation sector, 2024

4.2 Demographic Information

The study sought to determine the distribution of the respondents selected for the study based on their demographic information. The study specifically sought to establish the age, level of education, their working experience,designation and the department they are working at the KAA.

4.2.1 Age of Respondents

The study sought to establish the age distribution of the sampled respondents from the different airports in the study and the findings were as presented in Table 4.2;

Table 4.2. Age of Respondents

Variable	Category	N (141)	Percentage
Age bracket	Below 20 years	2	1.4
	20-30 years	18	12.8
	31-40 years	61	43.3
	41-50 years	39	27.7
	Above 50 years	21	14.8

Source: Survey conducted in the aviation sector, 2024

From the findings, 43.3% of the respondents were aged 31 to 40 years, 27.7% were aged 41-50 years, 14.8% were aged above 50 years, 12.8% were aged 31-35 years, 1.4% were aged below 20 years. These findings show that heads of sections in airport service providers in Kenya are of diverse ages but most of them constituting 43.3% were aged between 41 and 45 years. The findings indicated that most of the respondents were abit older generation and this could be explained by the fact that aviation is a regulatory field and most of the managerial and supervisory positions have attained a certain age bracket to qualify for a specific position in hierarchy. Since older and

younger generation managers interact effectively in today's dynamic aviation industry, strengths and weaknesses of each cohort must be understood to attain commendable performance.

4.2.2 Respondents' Level of Education

The study sought to determine the level of education of the selected respondents. The findings obtained were as presented in Table 4.3;

Table 4.3 Respondents' Level of Education

Variable	Category	N(141)	Perecnatge(%)
Education Level	Secondary Certificate	7	4.9
	Colledge Diploma	15	10.4
	University Graduate	60	42.6
	Post Graduate	59	41.8

Source: Survey conducted in the aviation sector, 2024

The findings in Table 4.3 point out that 42.6% of the respondents had bachelor's degree (University undergraduate) as their highest level of education, 41.8% had postgraduate, 10.4% had college diploma and 4.9% had secondary Certificates. These findings show that the selected respondents had varied level of education. Most (42.6%) had bachelor's degree. The findings also show that the respondents had attained some level of education that placed them in the position they held in the organization. Furthermore, the respondents were in a position to understand the questionnaire and provide the information needed for this study. Logical deduction from the findings, therefore, is that employees of the airport service providers in Kenya have good levels of education which includes both post graduate cadres. (Al Aina & Atan, 2020) asserted that the level of education greatly impacts on management, postulating the need to have employees with high qualifications at all levels of management.

4.2.3 Respondents' Work Experience

The study sought to establish the respondents work experience within the organization in which they worked. The findings obtained were as presented in Table 4.4

Table 4.4: Work Experience

Variable	Category	N=141 (n)	Percentage
Work experience	Less than 1 year	6	4.2
	1-5 years	31	22.0
	5-10 years	51	36.2
	Above 10 years	53	37.6

Source: Survey conducted in the aviation sector, 2024

The findings show that the selected respondents had diverse years of experience in their work places. The findings showed that 37.6% of the respondents had experience of Above 10 years years, 36.2% had experience of 5-10 years, 22.0% had experience of 1-5 years and 4.2% had Less than 1year. These results show that majority of the respondents had worked long enough and were therefore in a position to provide useful information on strategic human resource factors and implementation of safety management measures in their organization. There is always need to retain employees so as to gain sufficient expertise for implementation to be effective and thus the findings corroborate the referenced work.

4.2.4 Respondents' Designation

The study sought to establish the respondents designations and the findings obtained were as presented in Table 4.5:

Table 4.5: Table for Respondents Designation

Variable	**Category**	**Count**	**Percentage (%)**
Designation	Senior management	61	43.3
	Middle management	31	22.0
	section heads	12	8.5
	Supervisor	31	22.0
	Junior staff	6	4.2

Source: Survey conducted in the aviation sector, 2024

The findings indicate that the chosen respondents were employed by airports Authority from different departments. According to the results, 43.3% of the respondents were in senior management, 22.0% were in middle management and supervisory positions, 8.5% held department head positions, and 4.2% of the sample was junior employees in the business. According to these findings, the bulk of respondents held management or supervisory positions, placing them in a position to offer insightful commentary on the application of safety management practices inside their company and strategic human resource aspects. Employee retention is always necessary in order to acquire the necessary experience for successful implementation, and as a result, the results support the relevant research.

4.3 Presentation of Research Analysis, of Study Variables

The study primarily offers its findings on Likert scale questions for each variable in this section. For each variable, the respondents were asked to indicate how much they agreed or disagreed with the assertions. Using a 5-point Likert scale, 1 represents strongly disagree, 3 indicates undecided, 4 indicates agree, and 5 indicates strongly agree. The data was examined, and the results were interpreted by calculating the means and standard deviations. A standard deviation number of less than two was seen as low and indicated that the opinions of the respondents were consistent with the mean; on the other hand, a big standard deviation (less 2) indicated that the opinions of the respondents were not consistent with the mean. 1.8-1.8 indicated strong disagreement, 1.8-2.6 disagree, 2.6-3.4 neutral, 3.4-4.2 agree, and 4.2-5 highly agree for the mean.

The study analysed the qualitative data obtained from the open ended questions in the quastionairre by organizing the responses based on the study variables and then analysing each individual response

4.3.1 Human competencies on implementation of of safety management measures

The study sought to analyze the effect of Human competencies on implementation of of safety management measures in Kenya Airports Authority

4.3.1.1 Descriptive Analysis

Respondents gave their responses to the likert scale statements relating to the effect of human competencies on implementation of safety management measures and the results obtained were as presented in Table 4.7 below;

Table 4.7: Human Competencies

Statement	Mean	Std. Dev
My level of education affects the way I implement safety management measures at the airport	3.59	1.353
My technical skills affect the way I implement safety management measures at the airport	3.90	1.110
My experience affects the way I implement safety management measures at the airport	4.16	1.033
The staff empowerment programs have affected the way I implement safety management measures at the airport	3.91	1.032
My trainings affect the way I implement safety management measures at the airport	4.14	0.997
Composite Mean	3.94	1.105

Source: (Research Survey, 2024)

The respondents agreed to a greater extent that indeed human competencies impact the the implementation of the safety management measures, this was arrived at by a score of (Mean=3.94 SD=1.105). The respondents' level of agreement (Mean = 3.94) with respect to the impact of human skills on the execution of safety management procedures was moderate to high, according to the composite mean. This indicates that respondents believe education, technical abilities, experience, and training have a major impact on the implementation of safety management, on average.The standard deviation,(1.1050 which measures the diversity of replies around the mean, suggested that respondents' agreement is generally consistent. This shows that although there could be some individual variances in opinions, respondents generally agree that human competencies have a significant impact on the application of safety management.

4.3.1.2.Qualitative Analysis

The study explored whether human competencies affect the implementation of safety management measures at the airport. The majority of respondents (87%) affirmed that human competencies

play a crucial role, while only 13% disagreed. These quantitative findings are reinforced by the qualitative data collected through open-ended responses. Respondents who agreed highlighted several key themes. Many emphasized that a competent individual not only understands safety issues but also contributes significantly to the success of safety measures. For instance, one respondent noted, "A competent individual understands safety issues and their contribution to the success of his/her work," while another pointed out, "Competence informs the level of effectiveness in implementing safety management measures.

Another recurring theme was the ability to identify and handle hazards. One respondent stated, "A competent person has an ability to identify and deal with hazards," illustrating the importance of expertise in recognizing and mitigating risks. Additionally, the ease with which competent staff can adopt new safety measures was frequently mentioned. As one participant remarked, "A competent staff will usually be ready and easier for him to adopt or implement new safety measures unlike one who is not competent."Training and knowledge were repeatedly cited as critical factors in effective safety management. One respondent explained, "Because training in commensurate with what one does is important," while another added, "The more knowledge one possesses, the easier they will execute their duties." These insights underscore the value of ongoing education and skill development in maintaining high safety standards.

Furthermore, several respondents discussed the impact of competence on decision-making and overall performance. One noted, "The level of competence affects decision making and how one carries out their duties," and another emphasized, "Human competence is a critical and an inseparable element when it comes to the implementation of safety; any improper, inadequate, or undesired competence may lead to malfunctioning of the process or a catastrophic failure." These comments highlight the integral role that human competencies play in ensuring effective safety management.

The minority of respondents who disagreed with the notion that human competencies affect safety management provided less detailed explanations. Simple statements such as "I don't think so" and "No" indicate differing perspectives but do not offer substantial reasoning to counter the majority view. In conclusion, the data from this study strongly indicate that human competencies significantly impact the implementation of safety management measures at airports. The

qualitative responses emphasize the importance of understanding safety issues, handling hazards, and the necessity for continuous training and knowledge acquisition. These findings suggest that investing in employee competencies is essential for maintaining and enhancing safety protocols within the aviation sector.

4.3.2 Situational Awareness on implementation of of safety management measures

Situational awareness is a critical component in the effective implementation of safety management measures within any high-risk environment, including airports. It involves the perception of environmental elements, comprehension of their meaning, and projection of their future status, allowing individuals and teams to anticipate and respond to potential hazards promptly. In the aviation sector, situational awareness is essential for maintaining safety standards and preventing accidents, as it enables personnel to make informed decisions, recognize and mitigate risks, and coordinate actions effectively. This concept is integral to various aspects of airport operations, from air traffic control and ground handling to security and emergency response, underscoring its importance in ensuring the safety and efficiency of the entire aviation ecosystem. Therefore, the study sought to analyze the effect of situational awareness on implementation of of safety management measures in Kenya Airports Authority

4.3.2.1 Descriptive Analysis

Respondents gave their responses on various statements in the likert scale relating to the effect of situational Awareness on implementation of of safety management measures were as presented in Table 4.8 below;

Table 4.8: Situational Awareness

Statement	Mean	Std. Dev
My awareness of weather conditions Risk analysis affects my implementation of safety management measure at the airport	3.95	1.058
My awareness of the status of Aircraft's Risk monitoring affects my implementation of safety management measures at the airport	3.96	1.024
My awareness of other aircraft in the vicinity Risk mitigation affects my implementation of safety management measures at the airport	3.99	0.918

My awareness of the state of the maintenance work at the airport affects my Keeping risk register affects the implementation of safety management measures at the airport	3.95	1.037
My awareness of the location of the Aircraft Training employees in situation awareness affects my implementation of safety management measures at the airport	3.86	0.907
Composites Mean	3.94	0.989

Source: Research Survey, 2024)

Regarding how awareness affects many aspects of safety management practices at the airport, respondents showed a moderate to high degree of agreement (Mean = 3.94). This indicates that respondents believe their knowledge of the weather, the status of their aircraft, other nearby aircraft, maintenance activities, and employee locations has a big influence on how safety management is implemented. The standard deviation [0.989], which gauges how differently responses vary from the mean, shows that respondents' agreements are generally consistent. This shows that although there could be some individual variances in opinions, respondents generally agree that awareness has a significant and uniform impact on the application of safety management.

4.3.2.2 Qualitative Analysis

Situational awareness, as described by the respondents, is seen as a crucial factor in the implementation of safety management measures at the airport. The responses suggest that situational awareness affects decision-making, preparedness, and understanding of the work environment, all of which are key aspects of ensuring safety.

One respondent mentioned that situational awareness helps in planning earlier measures for safety management, indicating its proactive role in mitigating risks. Another respondent highlighted that being aware of the environment and working tools and equipment affects safety implementation, emphasizing the importance of understanding the context in which safety measures are implemented. Overall, 90% of the responses indicate a strong belief that situational awareness plays a critical role in safety management at the airport. It is seen as a factor that can prevent accidents, inform decision-making, and improve overall safety compliance. This aligns with the

general understanding that being aware of one's surroundings and understanding the context in which safety measures are implemented are essential for ensuring safety in any environment.

4.3.3 Human Communication on implementation of of safety management measures

Effective human communication is pivotal in implementing safety management measures at airports, facilitating the timely exchange of crucial information and ensuring coordinated responses to maintain a safe operational environment. The study sought to analyze the effect of Human communication on implementation of of safety management measures in the Aviation Sector

4.3.3.1 Descriptive Analysis

Respondents gave their opinion on various statements in the likert scale relating to human communication on the implementation of the safety management measures. They are presented on Table 4.9 below

Table 4.9 :Human Communication

Statement	Mean	Std. Dev
My managers/ i regularly communicate and share Information on safety management measures at the airport to all staff and across all the departments Communication channels	3.97	1.089
My managers/I use Information/communication on safety management in coordinating Communication policy which affects the implementation of safety management measures at the airport	4.13	1.064
I /My supervisors and managers use information on safety management in making informed decisions relating to Top management communication in the implementation of safety management measures at the airport	4.07	0.834
My/management regular communication and information on safety management measures at the airport has reduce human errors in Inter-department communication and enhanced the implementation of safety management measures at the airport.	4.09	0.815
Good team communication reduces errors which affects the implementation of safety management measures at the airport	4.27	0.844

Composite Mean	4.12	0.929

Source: (Research Survey, 2024)

The findings reveal a strong consensus among respondents regarding the importance of effective communication in implementing safety measures at airports, with a composite mean of 4.12. This indicates a high level of agreement that regular communication and information sharing among staff and departments significantly enhance safety outcomes. Furthermore, the use of safety management information in coordinating communication policies and making informed decisions is seen as crucial for safety management effectiveness, with a mean score of 4.13.

Respondents also noted that these communication practices have helped reduce human errors in inter-departmental communication, highlighting the positive impact of good team communication on safety management implementation, with a mean score of 4.27. The harmonic mean, which takes into account the variability of responses, further supports these findings, emphasizing the strong agreement among respondents regarding the importance of communication in safety management. These findings suggest that when managers and staff across all departments communicate regularly about safety, it helps improve safety measures. Coordinating safety strategies through information and communication is also seen as beneficial. Respondents feel that when top management uses information to make decisions, it improves safety management execution.

4.3.3.2. Qualitative Analysis

Human communication is widely recognized as a critical factor influencing the implementation of safety management measures at airports. The overwhelming majority of 94.1% agreed that human communication significantly affects safety management implementation. This strong consensus underscores the pivotal role communication plays in ensuring that safety protocols are effectively understood and followed by all stakeholders.

Effective communication is seen as a means to ensure that employees are well-informed about potential job hazards and the necessary precautionary measures. As one respondent noted, "A clear and effective communication ensures that all employees understand the potential hazards associated with jobs and the precautionary measures they should take." This understanding is essential for creating a safe working environment and preventing accidents. Additionally,

respondents emphasized that effective communication enhances coordination, teamwork, and safety awareness. "Good communication is the key to a safe and productive workspace," one respondent stated, highlighting the importance of clear and consistent communication in maintaining safety standards.

On the other hand, there were a few respondents 4.2% who expressed the view that human communication may not always be effective in implementing safety measures. Some respondents mentioned instances of miscommunication or gaps in communication leading to delays and uncertainties. However, these views were in the minority, and the overwhelming consensus among respondents was that effective human communication is vital for the successful implementation of safety management measures at airports.

4.3.4 Psychophysical parameters on implementation of of safety management measures

Psychophysical parameters such as perception and decision-making greatly impact safety management implementation at airports, influencing how individuals interpret information and execute safety protocols, emphasizing the importance of optimizing these factors for effective safety outcomes. Hence the study sought to analyze the effect of psychophysical parameters on implementation of of safety management measures in the Aviation Sector

4.3.4.1 Descriptive Analysis

Respondents gave their opinion on various statements in the likert scale relating to psychophysical parameters and the analysis is as presented on Table 4.6 below

Table 4.10: Psychophysical parameters

Statement	Mean	Std. Dev
My human errors has affected the implementation of safety management measures at the airport	3.88	1.355
My fatigue has affected the implementation of safety management measures at the airport	3.88	1.355
My attitude has affected the implementation of safety management measures at the airport	3.75	1.190

My Cognitive biases has affected the implementation of safety management measures at the airport	3.81	1.264
My Stress has affected the implementation of safety management measures at the airport	3.70	1.188
My Motivation has affected the implementation of safety management measures at the airport	3.74	1.280
Composite Mean	3.79	1.272

Source: (Research Survey, 2024)

The composite mean of 3.79 indicates that respondents generally agree that personal factors such as human errors, fatigue, attitude, cognitive biases, stress, and motivation have had an impact on the implementation of safety management measures at the airport. They perceive human errors and fatigue as having a particularly significant influence, with attitude, cognitive biases, stress, and motivation also playing roles, albeit to a slightly lesser extent. These findings underscore the importance of addressing these personal factors in safety management strategies to improve overall safety outcomes at the airport. This is widely supported by the individual average scores from the data collected. With a mean score of 3.88 and a standard deviation of 1.355, the results demonstrate that fatigue has a considerable impact on the use of safety management procedures. This shows that most respondents concur that being tired makes it harder for them to properly apply safety precautions. The average response rate was 3.75, with a standard deviation of 1.190, indicating that respondents also accept that attitude affects safety management. It appears that there is a modicum of consensus about the impact of attitude on the application of safety protocols.

With a mean score of 3.81 and a standard deviation of 1.264, cognitive biases are another element that affects safety management. All of the respondents concur that these prejudices affect how they apply safety precautions.With a mean score of 3.70 and a standard deviation of 1.188, stress is found to be a component that influences safety management. This suggests that participants concur that stress affects their capacity to properly implement safety procedures.With a mean score of 3.74 and a standard deviation of 1.280, motivation is a factor in safety management as well. This implies that the participants think their motivation level influences how safety precautions are carried out. The findings showed that a variety of individual factors, including attitude, weariness, stress, cognitive biases, and motivation, all have an impact on how well safety management

procedures are implemented at airports. These results highlight the necessity of addressing these human variables in order to improve safety management in Kenya's aviation sector.

4.3.4.2. Qualitative Analysis

The responsents indicated a strong belief among them, that psychophysical parameters significantly affect the implementation of safety management measures at airports. One noting that, "Airport being a dangerous zone needs one to be psychophysical and physically well to avoid dangers and therefore psychophysical parameters affect implementation of safety management." This highlights the understanding that being in a high-risk environment like an airport requires individuals to be mentally and physically prepared to effectively implement safety measures.

Furthermore they mentioned that an individual's state of body and mind affects their ability to implement safety measures, emphasizing the importance of psychological well-being. Another respondent highlighted the impact of factors like stress, fatigue, and motivation, stating, "Psychophysical parameters like stress, human errors, and fatigue will negatively affect performance hence negatively affecting implementation of safety management measures at the airport." This suggested that these parameters can hinder performance and decision-making, ultimately affecting safety outcomes. Overall, the responses indicate a recognition of the crucial role that psychophysical parameters play in ensuring the effective implementation of safety management measures at airports.

4.4 Inferential Statistics

The study utilized inferential statistics to examine the relationship between the study variables. This involved conducting correlation and regression analyses.

4.4.1 Diagnostic Tests of Regression

Diagnostic tests were performed to verify that the assumptions of linear regression were satisfied. These diagnostic tests are important to ensure the reliability of the model and the validity of the study's conclusions. The tests conducted were heteroscedasticity test, normality test, autocorrelation test using the Durbin-Watson statistic and multi-collinearity test using the Variance Inflation Factor (VIF).

4.4.1.1 Autocorrelation test

The Durbin-Watson statistic is a test for autocorrelation in the residuals from a regression analysis. It ranges from 0 to 4, with a value of 2 indicating no autocorrelation. In this case, the Durbin-Watson statistic is 1.043, which is close to 2 and suggests that there is no significant autocorrelation in the residuals. Autocorrelation occurs when there is a pattern in the residuals indicating that the model is not capturing some underlying trend in the data. Therefore, a Durbin-Watson statistic close to 2 is desirable as it indicates that the model is adequately capturing the relationship between the independent and dependent variables without any systematic pattern in the residuals.

Table 4.11 Autocorrelation Test

Model Summary[b]	
Model	**Durbin-Watson**
1	1.043[a]

Source: (Research Survey, 2024)

4.4.1.2 Multicollinearity Test

The coefficients of collinearity statistics provide information about multicollinearity between independent variables in a regression model. Tolerance is the proportion of variance in a predictor variable that is not explained by other predictor variables. VIF (Variance Inflation Factor) is the reciprocal of tolerance and indicates how much the variance of an estimated regression coefficient is increased due to multicollinearity. In this case, all variables have tolerances above 0.5 and VIF values below 2, suggesting that there is no severe multicollinearity among the independent variables. This means that each variable contributes unique information to the prediction of the dependent variable, Human factors.

Table 4.12 Multicollinearity using VIF

Coefficients[a]		
Model	**Collinearity Statistics**	
	Tolerance	**VIF**

1	Human competencies	.671	1.490
	Situational awareness	.584	1.714
	Human communication	.710	1.408
	Psychophysical parameters	.776	1.289

a. Dependent Variable: Human factors

Source: (Research Survey, 2024)

4.4.1.3 Test of Normality

Testing for normality is necessary because most of these statistical procedures are premised on normal distribution with the assumption that the population from which the samples are taken is normally distributed. Kolmogorov-Smirnov (K-S) test is the most popular test for normality, but it ought to be used with caution owing to its low power and therefore it is recommended that it should be augmented by tests such as Shapiro-Wilk which is most suitable for small sample sizes (<50) but can also be used for sample sizes as large as 2000. This study therefore based its interpretation of normality of data using the Shapiro-Wilk test. Both tests assess the deviation of data from a normal distribution. The Kolmogorov-Smirnov test statistic and the Shapiro-Wilk test statistic are reported along with their respective degrees of freedom (df) and significance levels (Sig.). All variables show significant deviations from normality, as indicated by p-values (Sig.) less than 0.05.

Table 4.9.1 Test For Normality

	Kolmogorov-Smirnov[a]			**Shapiro-Wilk**		
	Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Human competencies	.530	141	.000	.341	141	.000
Situational awareness	.528	141	.000	.354	141	.000
Human communication	.540	141	.000	.243	141	.000
Psychophysical parameters	.521	141	.000	.392	141	.000
Implementation SMM	.539	141	.000	.262	141	.000

a. Lilliefors Significance Correction

4.4.1.4.Heteroscedasticity

Kline (2015) defines heteroscedasticity as the unequal variability of a variable across different values of the predictor variable. When the error term varies at different levels of the independent variable, heteroscedasticity is present. This phenomenon occurs when the errors are not evenly distributed around a horizontal line. The study conducted a Breusch-Pagan test, with the null hypothesis stating that the error term variances are equal. A Prob > Chi-square value exceeding 0.05 indicates homoscedasticity. The null hypothesis is rejected if the p-value is less than the chosen significance level.

Table Breusch-Pagan Test for Heteroscedasticity

H0: Constant variance

Statistics	Df	Stat value	p-value
Chi-squared	4	2.3178	0.678

The findings presented indicate Chi2 = 2.3178 with a p-value = 0.678 which is greater than 0.05 which suggests that the distribution is not significant. We therefore reject the null hypothesis and conclude that there is no heteroscedasticity.

4.5 Correlation Analysis

Correlation analysis was performed to test the association between the independent variables and the dependent variable. The correlation table shows the relationships between different variables: Human factors, Human competencies, Situational awareness, Human communication, and Psychophysical parameters. Each cell in the table represents the Pearson correlation coefficient between the corresponding pair of variables. The values range from -1 to 1, where 1 indicates a perfect positive correlation, -1 indicates a perfect negative correlation, and 0 indicates no correlation.

Table 4.13 Correlation Analysis

Correlations						
		Y	X1	X2	X3	X4
Y	Pearson Correlation	1				
	Sig. (2-tailed)					
X1	Pearson Correlation	.301**	1			
	Sig. (2-tailed)	.000				
X2	Pearson Correlation	.380**	.501**	1		
	Sig. (2-tailed)	.000	.000			
X3	Pearson Correlation	.187*	.021	.413**	1	
	Sig. (2-tailed)	.027	.804	.000		
X4	Pearson Correlation	.335**	.299**	.351**	.366**	1
	Sig. (2-tailed)	.000	.000	.000	.000	

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

***. Correlation is significant at the 0.05 level (2-tailed).**

Source: (Research Survey, 2024)

Key: Y = Human factors; X1 = Human competencies; X2 = Situational awareness; X3 = Human communication; X4 = Psychophysical parameters

4.6 Linear Regression Analysis

Regression analysis was performed to ascertain whether the independent variables had a significant influence on the dependent variable.

4.6.1 Human Competency and implementation of safety management measures

The first objective of the study was to assess the effect of human competency on implementation of safety management measures in aviation industry in Kenya. In order to answer this objective,

the study regressed human competencies with implementation of safety management measures The summary model , ANOVA and regression co-efficient are presented below.

4.6.1.1 Summary Model

The study shown on table 4.14 sought to establish the correlation between human competency and implementation of safety management measures in the aviation industry and the total variation of implementation of safety management measures that could be explained by the human competency

Table 4.14 Simple Regression for Human Competency

Model Summary[b]					
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**Durbin-Watson**
1	.664[a]	.441	.440	.235	.994

a. Predictors: (Constant), Implementation of SMM

b. Dependent Variable: Human factors

Source: (Research Survey, 2024)

From the findings presented in Table 4.14, the value of R-squared value of 0.441, indicating that 44.1% of the variance in the dependent variable (Human factors) is explained by the model. The adjusted R-squared is 0.440, suggesting the model's explanatory power remains consistent when considering the number of predictors.

4.6.1.2 Analysis Of Variance (ANOVA)

The study analysis on table 4.15 below sought to determine whether the model is significant enough to determine the implementation of safety measures in the aviation industry

Table 4.15 ANOVA Test

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	.765	1	.765	13.886	.000[b]

	Residual	7.660	139	.055
	Total	8.426	140	

a. Predictors: (Constant), Human competencies

b. Dependent Variable: Implementation of SMM

Source: (Research Survey, 2024)

From the ANOVA findings, the p-value obtained was 0.00 which is less than 0.05, an indication that the model was significant. The findings also show that the F- calculated value 13.886 is greater than the F-critical value (F1,139=3.844). Since the F- calculated value is greater than the F-critical value it demonstrates that the model is reliable and can be used to predict implementation of safety management measures in the Aviation Industry in Kenya.

4.6.1.3 Regression Coefficients

To understand the influence of human competency on implementation of safety management measures in the aviation industry regression coefficients were computed and as shown on Table 4.17 below.

Table 4.16 Regression Coefficients

Coefficients[a]

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	.793	.075		10.530	.000
	Human competencies	.246	.066	.301	3.726	.000

a. Dependent Variable: Implementation of SMM

Source: (Research Survey, 2024)

From the coefficients table, the following model was fitted; Y= 0.793 + 0.246

Where X1=Human Competencies

From the equation above, when human competency is held to a constant zero, implememtation of safety management measures will be at a constant value of 0.793. The findings also show that a

unit increase in human competencies will lead to a 0.246 unit increase in the implementation of the safety management measures. The findings also show that the t-statistic 3.726 has a p-value = 0.000 which is less than the selected level of significance 0.05.

4.6.1.4 Test of the Study Hypothesis

Therefore, we reject the first null hypothesis (H01) and conclude that human competencies has a significant effect on the implementation of safety management measures in the aviation industry in Kenya.

4.6.2 Situational awareness in the implementation of safety management measures

The second objective of the study was to assess the effect of situational awareness on implementation of safety management measures in aviation industry in Kenya. In order to answer this objective, the study regressed situationa awareness with implementation of safety management measures.

4.6.2.1 Model Summary

The study shown on table 4.15 sought to establish the correlation between situational awareness and implementation of safety management measures in the aviation industry and the total variation of implementation of safety management measures that could be explained by the situational awareness. From the findings presented in Table 4.14, the value of R2 was 0.145 which implies that 14.5% of variation in implementation of safety management measures can be attributed to changes in situational awareness. The remaining 85.5% variation in implementation of safety management system can be attributed to other aspects other than changes in situational awareness.

Table 4.17 Model Summary

Model Summary[b]					
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**Durbin-Watson**
1	.380[a]	.145	.139	.228	.969

a. Predictors: (Constant), Situational awareness

b. Dependent Variable: Implementation of SMM

Source: (Research Survey, 2024)

4.6.2.2 Analysis of Variance (ANOVA)

The study analysis on table 4.18 below sought to determine whether the model is significant enough to determine the implementation of safety measures in the aviation industry. From the ANOVA findings, the p-value obtained was 0.000 which is less than 0.05, an indication that the model was significant. The findings also show that the F- calculated value 23.516 is greater than the F-critical value (F1,139=3.844). Since the F- calculated value is greater than the F-critical value it demonstrates that the model is reliable and can be used to predict implementation of safety management measures in the Aviation Industry in Kenya.

Table 4.18 ANOVA

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	1.219	1	1.219	23.516	.000[b]
	Residual	7.206	139	.052		
	Total	8.426	140			

a. Predictors: (Constant), Situational awareness

b. Dependent Variable: Implementation of SMM

Source: (Research Survey, 2024)

4.6.2.3 Regression Coeficients

To understand the influence of situational awareness on implementation of safety management measures in the aviation industry regression coefficients were computed and as shown on Table 4.19 below. From the coefficients table, the following model was fitted;

Y= 0.730 + 0.302 X2 ***Where X2= Situational Awareness***

From the equation above, when situational awareness is held to a constant zero, implememtation of safety management measures will be a constant value of 0.730. The findings also show that a unit increase in situational awareness will lead to a 0.302 unit increase in the implementation of the safety management measures.

Table 4.19 Regression Coefficients

Coefficients[a]						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	.730	.071		10.222	.000
	Situational awareness	.302	.062	.380	4.849	.000
a Dependent Variable: Implementation of SMM						

Source: (Research Survey, 2024)

The findings also show that the t-statistic 4.849 has a p-value = 0.000 which is less than the selected level of significance 0.05.

4.6.2.4.Test of the Study Hypothesis

Therefore, we reject the second null hypothesis (H02) and conclude that **s**ituational awareness has a significant effect on the implementation of safety management measures in the aviation industry in Kenya.

4.*6.3* Human Communication on the implementation of safety management measures

The third objective of the study was to assess the effect of human communication on the implementation of safety management measures in aviation industry in Kenya. In order to answer this objective, the study regressed human communication with implementation of safety management measures. The findings were as presented in Table 4.15;

4.6.3.1 Model Summary

The study shown on table 4.14 sought to establish the correlation between human communication and implementation of safety management measures in the aviation industry and the total variation of implementation of safety management measures that could be explained by the human communication. From the findings presented in Table 4.20, the value of R2 was 0.035 which implies that 3.5% of variation in implementation of safety management measures can be attributed to changes in human communication. The remaining 96.5% variation in implementation of safety

management system can be attributed to other aspects other than changes in human communication.

Table 4.20 Simple Regression for Situational Awarenes

Model Summary[b]					
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**Durbin-Watson**
1	.187[a]	.0350	.0280	.242	.983

a. Predictors: (Constant), Human communication

b. Dependent Variable: Implementation of SMM

Source: (Research Survey, 2024)

4.6.3.2 Analysis of Variance (ANOVA)

The study analysis on table 4.21 below sought to determine whether the model is significant enough to determine the implementation of safety measures in the aviation industry. From the ANOVA findings, the p-value obtained was 0.000 which is less than 0.05, an indication that the model was significant. The findings also show that the F- calculated value 23.516 is greater than the F-critical value (F1,139=3.844). Since the F- calculated value is greater than the F-critical value it demonstrates that the model is reliable and can be used to predict implementation of safety management measures in the Aviation Industry in Kenya.

Table 4.21 ANOVA

ANOVA[a]						
Model		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
1	Regression	.294	1	.294	5.025	.027[b]
	Residual	8.132	139	.059		
	Total	8.426	140			

a. Dependent Variable: Implementation of SMM

b. Predictors: (Constant),Human communication

Source: (Research Survey, 2024)

4.6.3.3 Regression Coefficients

To understand the influence of human communication on implementation of safety management measures in the aviation industry regression coefficients were computed and as shown on Table 4.22 below. From the coefficients table, the following model was fitted;

Y= 0.855 + 0.197 X3 ***Where X3= Human Communication***

From the equation above, when human communication is held to a constant zero, implememtation of safety management measures will be a constant value of 0.855. The findings also show that a unit increase in situational awareness will lead to a 0.197 unit increase in the implementation of the safety human communication.

Table 4.22 Regression Coeffiecients

Coefficients[a]						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	Std. Error	Beta		
1	(Constant)	.855	.095		8.979	.000
	Human communication	.197	.088	.187	2.242	.027

a. **Dependent Variable: Implementation of SMM**

Source: (Research Survey, 2024)

The findings also show that the t-statistic 2.242 has a p-value = 0.027 which is less than the selected level of significance 0.05.

4.6.3.4 Test of the Study Hypothesis

Therefore, we reject the third null hypothesis (H03) and conclude that human communication has a significant effect on the implementation of safety management measures in the aviation industry in Kenya.

4.*6*.4 Physchopysical Parameters on the implementation of the Safety management Measures

The third objective of the study was to assess the effect of physcophysical parameters on the implementation of safety management measures in aviation industry in Kenya. In order to answer

this objective, the study regressed physcophysical parameters with implementation of safety management measures. The findings were as presented in Table 4.16;

4.6.4.1 Model Summary

The study shown on table 4.23 sought to establish the correlation between physcophysical parameters and implementation of safety management measures in the aviation industry and the total variation of implementation of safety management measures that could be explained by the physcophysical parameters. From the findings presented in Table 4.23, the value of R2 was 0.112 which implies that 11.2% of variation in implementation of safety management measures can be attributed to changes in situational awareness. The remaining 88.8% variation in implementation of safety management system can be attributed to other aspects other than changes in psychophysical parameters.

Table 4.23 Simple Regression for Pschopysical parameters

Model Summary[b]					
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**Durbin-Watson**
1	.335[a]	.112	.106	.232	1.098

a. Predictors: (Constant) Psychophysical parameters

b. Dependent Variable: Implementation of SMM

Source: (Research Survey, 2024)

4.6.4.2 Analysis of Variance (ANOVA)

The study analysis on table 4.24 below sought to determine whether the model is significant enough to determine the implementation of safety measures in the aviation industry. From the ANOVA findings, the p-value obtained was 0.000 which is less than 0.05, an indication that the model was significant. The findings also show that the F- calculated value 17.549 is greater than the F-critical value (F1,139=3.844). Since the F- calculated value is greater than the F-critical value it demonstrates that the model is reliable and can be used to predict implementation of safety management measures in the Aviation Industry in Kenya

Table 4.24 ANOVA

ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.945	1	.945	17.549	.000b
	Residual	7.481	139	.054		
	Total	8.426	140			

a. Dependent Variable: Implementation of SMM

b. Predictors: (Constant),Psychophysical parameters

Source: (Research Survey, 2024)

4.6.4.3 Regression Coefficients

To understand the influence of human competency on implementation of safety management measures in the aviation industry regression coefficients were computed and as shown on Table 4.25 below. From the coefficients table, the following model was fitted;

Y= 0.787 + 0.245 X4 ***Where X4 = Psychophysical parameters***

From the equation above, when psychophysical parameters is held to a constant zero, implememtation of safety management measures will be a constant value of 0.787.

Table 4.25 Regression Coeficients

Coefficients[a]						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	.787	.069		11.435	.000
	Psychophysical parameters	.245	.059	.335	4.189	.000

a. Dependent Variable: Implementation of SMM

Source: (Research Survey, 2024)

The findings also show that a unit increase in psychophysical parameters will lead to a 0.245 unit increase in the implementation of the safety management measures. The findings also show that the t-statistic 4.189 has a p-value = 0.000 which is less than the selected level of significance 0.05.

4.6.4.4 Test of the Study Hypothesis

Therefore, we reject the fourth null hypothesis (H04) and conclude that psychophysical parameters has a significant effect on the implementation of safety management measures in the aviation industry in Kenya

4.*7* Multiple Regression Analysis

The study sought to establish the combined effect of situational awareness, human communication, human competences, and psychophysical factors on implementation of safety management measures in aviation industry in Kenya. Multiple regression analysis was computed to determine the influence of strategic firm level dimensions on implementation of safety management measures in the Aviation Industry in Kenya. The model adopted was $Y = \alpha + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \varepsilon$ where X1 = human competences; X2 = situational awareness; X3 = human competences; X4 = psychophysical factors; Y is Implemention of Safety Management Measures, α is the Y intercept, $\beta 1\text{-}4$ are Coefficients of Regression and ε is the error term of the model. The findings were as presented in Table 4.17;

4.7.1 Model Summary

The study sought to establish the correlation between strategic human resource factors and implementation of safety management measures in the aviation industry and the total variation of implementation of safety management measures that could be explained by the human resource factors

Table 4.26 Model Summary

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.448[a]	.207	.177	.223

a. Predictors: (Constant), human competences , situational awareness,human communication and psychophysical factors

Source: (Research Survey, 2024)

The model summary presented highlights the degree of correlation between the dependent variable and the independent variables, which include situational awareness, human communication, human competences, and psychophysical factors. The predictors and the outcome variable appear to have a moderate association, as indicated by the R value of.448. Given the dependent variable's R Square value of 0.217, the model can account for 20.7% of its variability. When the number of predictors in the model is taken into account, the Adjusted R Square value of.177, which is slightly less than the R Square, indicates the percentage of variance explained by the model. A gauge of how accurate the model's predictions are is provided by the standard error of the estimate (.223).

4.7.2 Analysis of Variance (ANOVA)

The Analysis of Variance (ANOVA) (Table 4.27) provides a statistical summary of the variance in the dependent variable explained by the independent variables in the regression model. It essentially tests the overall significance of the model by comparing the model's explained variance to the unexplained variance.

Table 4.27 Anova Table

ANOVA[a]						
Model		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
1	Regression	1.687	4	.422	8.515	.000[b]
	Residual	6.738	136	.050		
	Total	8.426	140			

Source: (Research Survey, 2024)

From the ANOVA table, the model's significance is evident as the p-value of 0.000 is less than the threshold of 0.05, indicating strong statistical significance. The F-test, with a calculated value of 8.515, measures the ratio of the explained variance to the unexplained variance, providing a basis for determining the model's overall significance. This F-calculated value is greater than the F-critical value ($F_{4,136} = 2.449$), which suggests that the independent variables, taken together, significantly influence the dependent variable. This demonstrates that the model reliably predicts the implementation of safety management measures in the aviation industry in Kenya.

4.7.3 Regression Coefficients

The regression coefficients table reveals the impact of various predictors on the dependent variable, implementation of safety management measures (SMM). The t-values and p-values indicate the significance of each predictor in the model.

For human competencies, the t-value is 1.219 with a p-value of 0.025. Since the p-value is less than the significance level of 0.05, we reject the null hypothesis (Ho5) for this predictor, concluding that human competencies significantly affect the implementation of safety management measures.

Table 4.28 Regression Coefficients

Model		Coefficients[a]				
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.564	.111		5.065	.000
	Human Competencies	.093	.077	.114	1.219	.025
	Situational awareness	.196	.080	.247	2.458	.015
	Human communication	.005	.096	.005	.055	.017
	Psychophysical parameters	.156	.064	.212	2.439	.016

Source: (Research Survey, 2024)

Situational awareness has a t-value of 2.458 with a p-value of 0.015. This p-value is also below the 0.05 threshold, leading to the rejection of the null hypothesis for situational awareness. Thus, situational awareness significantly impacts the implementation of safety management measures.

Human communication shows a t-value of 0.055 with a p-value of 0.017. Despite the t-value being relatively low, the p-value is still less than 0.05. Therefore, we reject the null hypothesis for human communication, indicating its significant effect on the implementation of safety management measures. Psychophysical parameters have a t-value of 2.439 with a p-value of 0.016. The p-value being below 0.05 results in rejecting the null hypothesis for psychophysical parameters, confirming their significant impact on the implementation of safety management measures.

Y=0.564+0.093X1 + 0.196X2 + 0.005X3 + 0.156X4

Where:

Y- Implementation of Safety Management Measures

X1- Human Competencies

X2- Situational Awareness

X3- Human Communication

X4PP- Psychophysical Parameters

The t-values and p-values support rejecting the null hypothesis (Ho5) across all predictors, establishing that human competencies, situational awareness, human communication, and psychophysical parameters significantly influence the implementation of safety management measures in the aviation industry in Kenya

4.7.4 Test of the Study Hypothesis

Therefore, we reject the first null hypothesis (H05) and conclude that human competencies, situational awareness, human communication, and psychophysical parameters have a significant effect on the implementation of safety management measures in the aviation industry in Kenya.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1.Introduction

This chapter presents summary of key findings, conclusions drawn from the findings highlighted and recommendations made thereto. The conclusions and recommendations drawn were focused on addressing the objective of the study and suggestions for further research. In the summary of findings, the study focused on summarizing the findings in relation to each study objective and independent variables. The conclusion responds to the overall research objective of the study on whether strategic human resource factors affect implementation of safety management measures in aviation industry in Kenya. Recommendations are based on the study findings of each variable and the suggestions made by the respondents. The area of further research focuses on future study needs as identified by the researcher.

5.2 Summary of Findings

The main objective of this research was to examine the effect of strategic human factors on implementation of safety management measures in aviation industry in Kenya. Specifically it sought to establish the effect of human competencies, situational awareness, human communication and psychophysical parameters on the implementation of safety management measures in the aviation industry in Kenya and the summary of the findings are presented below

5.2.1 Effect of Human Competency on the Implementation of Safety Management Measures in the Aviation Industry in Kenya

The study established that human competencies significantly influence the implementation of safety management practices in Kenya's aviation sector, as evidenced by the study's composite mean (3.94) and standard deviation (1.105). Qualitative analysis reinforced these findings, with a majority of respondents (87%) agreeing on the importance of human competencies. Furthermore, inferential statistical tests revealed that the effect of human competencies on the implementation of safety management practices was both positive and significant ($t = 3.726$, $p = 0.000$).

5.2.2 The Effect of Situational Awareness on the Implementation of Safety Management Measures in the Aviation Industry in Kenya

The study found that situational awareness significantly influences the implementation of safety management practices in Kenya's aviation sector, as evidenced by the composite mean (3.94) and

standard deviation (0.989). Additionally, qualitative analysis results supported these findings, with 90% of respondents agreeing that situational awareness impacts the implementation of safety management practices in Kenya's aviation sector. Inferential statistical tests (t=4.849 pvalue=0.000) further revealed that the effect of situational awareness on safety management practices is positive and significant, underscoring its critical role in the implementation of safety measures in the aviation industry in Kenya.

5.2.3 The Effect of Human communication on the Implementation of Safety Management Measures in the Aviation Industry in Kenya

The study found that human communication significantly influences the implementation of safety management practices in Kenya's aviation sector, as indicated by the study's composite mean (4.12) and (SD=0.929). Additionally, inferential statistical tests t = 2.242 with a pvalue less that 0.05(0.000) demonstrated that the effect of human communication on safety management practices is positive and significant, highlighting their significant influence on the implementation of safety measures in the aviation industry in Kenya. Qualitative analysis results supported these findings, with 94.1% of respondents agreeing that human communication impacts the implementation of safety management practices in Kenya's aviation sector.

5.2.4 The Effect of Psychophysical parameters on the Implementation of Safety Management Measures in the Aviation Industry in Kenya

The study found that psychophysical parameters play a significant role in influencing the implementation of safety management practices in Kenya's aviation sector, as indicated by the study's composite mean (3.79) and standard deviation (1.272).Qualitative analysis results supported these findings, with 89% of respondents agreeing that Psychophysical parameters impacts the implementation of safety management practices in Kenya's aviation sector. Additionally, inferential statistical tests t = 4.189 with a pvalue less that 0.05(0.000) demonstrated that the effect of psychophysical parameters on safety management practices is positive and significant, highlighting their significant influence on the implementation of safety measures in the aviation industry in Kenya.

5.3 Discussion of the Study Findings

5.3.1 Effect of Human Competency on the Implementation of Safety Management Measures in the Aviation Industry in Kenya

The study established that human competencies significantly influence the implementation of safety management measures in Kenya's aviation sector and this concurs with research by (Chávez Reyes et al., 2018) , respondents largely concurred that their educational background affects their capacity to execute safety measures. These studies also emphasized the significance of educational attainment and ongoing professional development in improving safety management practices. According to (Toyoda et al., 2022), technical competency is necessary for the successful implementation of safety measures in high-risk industries. These findings are consistent with the finding that technical skills have a major impact on safety management. The findings of this study reaffirm how crucial technical skill development is to raising safety standards.The importance of experience was emphasized, supporting (Sinclair et al., 2021) findings that workers with more experience are better able to anticipate and reduce possible safety risks. According to Erickson's research, experience makes it easier to put good safety management measures into practice, which validates the findings of the current study about the importance of expertise in the field.

Programs for staff empowerment have been shown to improve safety management. This is consistent with research by (Mangold et al., 2021),who discovered that by empowering staff members to assume responsibility for safety procedures, empowerment programs promote a proactive safety culture. Their findings are supported by the current study, which implies that these kinds of programs are helpful in improving safety management. Training was found to be an essential component, supporting the findings of (Stroeve et al., 2022) study, which highlighted the need for regular and thorough training programs to uphold high safety standards in the aviation sector. The results of the study support Davis and Green's conclusions by highlighting the significance of training in the efficient application of safety measures

5.2.2 The Effect of Situational Awareness on the Implementation of Safety Management Measures in the Aviation Industry in Kenya

The study found that situational awareness significantly influences the implementation of safety management practices in Kenya's aviation sector. This finding aligns withearlier research by

(Winter et al., 2020) observed in earlier research that weather had a major impact on aircraft safety, which is consistent with this finding. But although while our study concentrated on how people saw the weather, other academics have also stressed how crucial it is to provide pilots and ground crew with accurate weather forecasts and weather-related information (Friedman et al., 2024).As a result, while our findings are consistent with the body of research on how weather affects safety management, they also draw attention to the need for better weather monitoring and communication techniques in the aviation sector.

The results of (Stroeve et al., 2022) study, which stressed the value of technical expertise in tracking aircraft status for safety management, are in line with this conclusion. Nevertheless, as noted by (Yazdi et al., 2024), who discovered that seasoned staff members are better suited to anticipate and minimize possible safety dangers, our work underscores the necessity of ongoing monitoring and risk assessment. As a result, our results underline the necessity of continual risk assessment in order to maintain aviation operations' safety, even as they also corroborate the body of recent research on the significance of aircraft monitoring.

This result is in line with studies by (Eden et al., 2020),who discovered that situational awareness is essential for reducing the risk associated with nearby aircraft. While our study concentrated on how adjacent aircraft were seen, other researchers have also stressed the significance of cooperation and communication between air traffic controllers and pilots in controlling airspace congestion and guaranteeing safe aircraft separation (Rangrazjeddi et al., 2023). Thus, while our results are consistent with the literature currently in publication regarding the significance of situational awareness, they also emphasize the necessity of efficient coordination and communication in the management of airspace safety.

Effective safety management was thought to depend on keeping an up-to-date risk registry and being informed of maintenance duties. According to (Can Saglam et al., 2020) research, proactive risk management strategies are crucial, and this conclusion supports their findings. But effective risk management necessitates ongoing monitoring and assessment of maintenance activities. These findings, together with the necessity of frequent maintenance inspections and timely risk register updates, are further emphasized by our study. Thus, our findings underscore the necessity of

continuous maintenance and risk assessment to ensure aviation operations' safety, even as they corroborate the body of research already in existence on the significance of risk management.

. The results of this study align with the definition of situational awareness provided by (Konadu-Osei et al., 2023), which is the ability to see and interpret context-relevant elements. But even while our research concentrated on staff education and awareness, other academics have stressed the significance of leadership and organizational culture in fostering a culture of safety (Eden et al., 2020). Our findings thus underscore the necessity of a thorough approach to safety management that takes organizational issues into account, even as they also corroborate the body of research already done on the significance of situational awareness.

5.3.3 The Effect of Human communication on the Implementation of Safety Management Measures in the Aviation Industry in Kenya

The study found that human communication significantly influences the implementation of safety management practices in Kenya's aviation sector. This result is in line with study by (Stroeve et al., 2022), who discovered that efficient lines of communication are necessary for the aviation industry to distribute safety-related information. The study also discovered that the successful implementation of safety measures is positively impacted by the coordination of safety management methods through information and communication. This is consistent with study by (de Fátima Silva Piedade & Warnock-Smith, 2021), who highlighted the significance of teamwork in putting safety rules and procedures into practice.

All respondents concurred that better safety management execution results from senior management's decision-making based on information. Research by (Love et al., 2022), who discovered that senior management's support is essential to the effectiveness of safety measures, corroborates this conclusion.It has been discovered that regular information sharing on safety management techniques significantly lowers the likelihood of human error and improves departmental communication. This result is in line with Smith and Wesson's (2020) study, which emphasized the importance of communication.

The consensus was that effective team communication is essential to lowering errors and successfully executing safety management processes. Research by (Bellido-Manganell et al., 2022), who stressed the value of cooperation and communication in guaranteeing safety in aircraft

operations, supports this conclusion. The results emphasize that effective communication and information sharing, policy coordination, senior management involvement, reducing human error through consistent communication, and skilled team communication are critical to the successful implementation of safety management procedures at airports.

5.2.4 The Effect of Psychophysical parameters on the Implementation of Safety Management Measures in the Aviation Industry in Kenya

The study found that psychophysical parameters play a significant role in influencing the implementation of safety management practices in Kenya's aviation secto. This result is in line with studies by (Olaganathan et al., 2021), which discovered that fatigue greatly reduces cognitive function and decision-making, raising the possibility of aviation-related mishaps. There was consensus among answers on the impact of attitude on the application of safety protocols, as evidenced by their agreement that attitude influences safety management. This result is consistent with studies conducted by (Bisbey et al., 2021), who highlighted the importance of positive attitudes in fostering an aviation safety culture and encouraging adherence to safety protocols.

The application of safety precautions is impacted by cognitive biases, which was noted as another element influencing safety management and agreed upon by respondents. According to (Reale et al., 2023) research, cognitive biases have an impact on decision-making and safety performance in high-risk contexts like aviation. This finding is consistent with their findings. According to the respondents, stress and motivation have an impact on their ability to carry out safety procedures, which further suggests that these elements influence safety management. This results aligns with the findings of a study conducted by Green et al.,2020 which showed that motivation is positively correlated with safety performance and that excessive levels of stress might result in mistakes and accidents in aviation.

5.4 Conclusion of the Study

Based on the findings, a number of conclusions about the influence of strategic human resource determinants on the use of safety management practices in Kenya's aviation sector may be made. Foremost, is that human resources including training, empowerment programs, technical expertise, education, and experience are essential for the effective execution of safety measures. Situational awareness plays a significant role in how safety management strategies are put into practice. The

study emphasizes how crucial it is to comprehend weather trends, aircraft status, and risk assessment in order to guarantee aviation operations are safe. Moreover, successful human communication is found to be a critical factor in the execution of safety measures. enhancing safety procedures and lowering human error rates require continuous information exchange and communication between managers and employees in all areas. psychophysical factors, such as human error, fatigue, attitude, cognitive biases, stress, and motivation, affect the implementation of safety management measures in the aviation industry

5.5 Recommendations of the Study

Based on the results of the study's objectives and the literature analysis, this part offers recommendations based on the study finding.

5.5.1 Recommendation for Policy

There is need for governmental and regulatory organizations to create and implement rules that give priority to continuing education and career advancement for aviation employees. Policies that encourage reporting of safety problems without fear of retaliation should be put into place. It's also advisable to upgrade weather monitoring and communication systems to raise situational awareness and lower the likelihood of weather-related mishaps. Professional associations and industrial associations need to emphasise strategic human factors as policy to be incorporated best practices in safety management.

5.5.2 Recommendation for Practice

Training initiatives aimed at improving human competences like technical proficiency, situational awareness, and effective communication should be prioritised by airports and airline operators.

There is need for airline operators and airport management to put fatigue management techniques into practice to address how exhaustion affects safety management.

It is essential for airline and airport managers to give situational awareness, risk assessment and communication a top priority in day-to-day operations so as to guarantee that safety policies and procedures are adhered to.

5.6 Recommendation for Further Research.

An extension of this research could involve contrasting the impact of strategic human resource determinants on safety management practices in various industries, including multimodal, rail, and maritime transportation. This comparison study may offer important new perspectives on how well strategic HRM methods are adapted and transferable to various industry contexts.

Beyond this study variable, more research is required to explore other strategic human resource factors such as staff involvement, inclusiveness and diversity policies, and talent management tactics may provide a more thorough grasp of the ways in which different HR campaigns affect aviation safety.

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APPENDICES

APPENDIX I: QUESTIONNAIRE

This study aims to examine the **effects of strategic human resources on implementation of safety management measures in aviation industry in Kenya**. All responses will be treated in strict confidence and will not be used for any other purpose apart from that academic.

Section A: Background information *(please put an X in relevant box)*

Name (Optional)…….

1. What is your age bracket?

Below 20 years [ ] 20-30 years [ ] 31-40 years [ ] 41-50 years [ ] Above 50 years [ ]

2. Which is your highest academic level?

Primary certificate [ ] Secondary certificate [ ] College diploma [ ] University Graduate [ ]Post graduate [ ]

3. How long have you been working with Airports Authority?

Less than 1 year [ ] 1-5 years [ ] 5-10

years [ ] Above 10 years [ ]

4. What is your job designation?

Senior management [ ] Middle management [ ] section heads [ ] Supervisor [ ]

Junior staff [ ]

5 which is your department? Tick the appropriate

i) Senior management and Airport Managers [ ] ii) Bird Scout [ ] iii) GFS [ ] iv) Fire and Rescue [ ] v) Security Services [ ] vi) Aviation Safety [ ]

Section B: Human factors

Indicate the extent to which you agree or disagree with the following statements on how human resource factors affect the implementation of safety management measures in aviation industry in

Kenya. Use a scale of 1-5 where 1=strongly disagree, 2=disagree, 3- undecided, 4= agree and 5= strongly agree.

Human competencies and implementation of safety management measures at Kenya Airports Authority in aviation industry in Kenya.

Item	1	2	3	4	5
My level of education affects the way I implement safety management measures at the airport					
My technical skills affects the way I implement safety management measures at the airport					
My experience affects the way I implement safety management measures at the airport					
The staff empowerment programs has affected the way I implement safety management measures at the airport					
My trainings affects the way I implement safety management measures at the airport					

Do you think Human competencies affect the implementation of safety management measures at the airport? Yes No

explain your answer above

_____

_____

_____

Section C: Situational awareness and implementation of safety management measures at Kenya Airports Authority in the aviation industry in Kenya.

Indicate the extent to which you agree or disagree with the following statements. Use a scale of 1-5 where 1=strongly disagree, 2=disagree, 3- undecided, 4= agree and 5= strongly agree.

Situational awareness and implementation of safety management measures in the aviation industry in Kenya.

Item	1	2	3	4	5
My awareness of weather conditions Risk analysis affects my implementation of safety management measure at the airport					
My awareness of the status of Aircraft's Risk monitoring affects my implementation of safety management measures at the airport					
My awareness of other aircraft in the vicinity Risk mitigation affects my implementation of safety management measures at the airport					
My awareness of the state of the maintenance work at the airport affects my Keeping risk register affects the implementation of safety management measures at the airport					
My awareness of the location of the Aircraft Training employees in situation awareness affects my implementation of safety management measures at the airport					

Do you think Situational awareness affect the implementation of safety management measures at the airport? Yes No

explain your answer above

_____

_____

_____

Section D: Human communication on the implementation of safety management measures at Kenya Airports Authority in the aviation industry in Kenya.

Indicate the extent to which you agree or disagree with the following statements. Use a scale of 1-5 where 1=strongly disagree, 2=disagree, 3- undecided, 4= agree and 5= strongly agree.

Human communication on the implementation of safety management measures at Kenya Airports Authority in the aviation industry in Kenya.

Item	1	2	3	4	5
My managers/ i regularly communicate and share Information on safety management measures at the airport to all staff and across all the departments Communication channels					
My managers/I use Information/communication on safety management in coordinating Communication policy which affectsthe implementation of safety management measures at the airport					
I /My supervisors and managers use information on safety management in making informed decisions relating to Top management communication in the implementation of safety management measures at the airport					
My/management regular communication and information on safety management measures at the airport has reduce human errors in Inter-department communication and enhanced the implementation of safety management measures at the airport.					
Good team communication reduces errors which affects the implementation of safety management measures at the airport					

Do you think Human communication affect the implementation of safety management measures at the airport? Yes No

explain your answer above

_____

_____

_____

Section E Psychophysical parameters on the implementation of safety management measures at Kenya Airports Authority in the aviation industry in Kenya

Item	1	2	3	4	5
My human errors has affected the implementation of safety management measures at the airport					
M fatigue has affected the implementation of safety management measures at the airport					
My attitude has affected the implementation of safety management measures at the airport					
My Cognitive biases has affected the implementation of safety management measures at the airport					
My Stress has affected the implementation of safety management measures at the airport					
My Motivation has affected the implementation of safety management measures at the airport					

Do you think Psychophysical parameters affect the implementation of safety management measures at the airport? Yes No

explain your answer above

_____

_____

_____

SECTION F: Implementation of Safety management measures at the Kenya Airports Authority in the aviation industry in Kenya.

This section contains statements related to the performance of construction projects in terms quality expected and meeting the schedule. Tick one box accordingly Use a scale of 1-5 where 1=strongly disagree, 2=disagree, 3- undecided, 4= agree and 5= strongly agree.

Item	**1**	**2**	**3**	**4**	**5**
The implementation of safety management measures at the airport has improved the efficiency and effectiveness of airport operations					
Costs associated with safety incidents at the airport have drastically reduced after the implementation of safety management measures					
There are prompt take-offs of aeroplanes after the implementation of safety management measures at the airport					
Safety processes at the Airport have been streamlined after the implementation of safety management measures at the airport					
There is drastic reduction in accidents and incidents at the airport after the implementation of safety management measures					
There's substantial reduction in potential penalties or fines for non-compliance with the implementation of safety management measures at the airport					

Do you think human resource factors affect the implementation of safety management measures at the airport? Yes No

explain your answer above

_____

_____

_____

THE END

APPENDIX II: LETTER OF INTRODUCTION

ERICAH CHEBET
P.O. Box 31092-00600,
Nairobi, Kenya.

Dear Respondent,

RE: LETTER OF TRANSMITTAL OF DATA COLLECTION

I am a postgraduate student at Africa Nazarene University pursuing a master's degree in Business Administration (Strategic Management Option). As part of the requirement for the award of the master's degree, I'm undertaking a research on **Effect of strategic human resource factors on implementation of safety management measures in aviation industry in Kenya**

Therefore, I'm kindly requesting for your support in terms of time in responding to the attached questionnaire. Your precision and honest response will be critical in ensuring objectivity in the research.

All the information received will be treated in strict confidence. Thank you for your valuable time and participation.

Yours faithfully,



Ericah Chebet

APPENDIX III: RESEARCH AUTHORIZATION

17th, May 2024

E-mail: researchwriting.mba.mme@anu.ac.ke

Tel. 0202711213

Our Ref: 16S03DMBA015

The Director.
National Commission for Science,
Technology and Innovation (NACOSTI),
P. O. Box 30623, 00100
Nairobi. Kenya

Dear Sir/Madam:

RE: RESEARCH AUTHORIZATION FOR: ERICAH CHEBET

Miss. Ericah is a postgraduate student at Africa Nazarene University in the Master of Business Administration (MBA) program.

In order to complete her program, Miss. Ericah is conducting research entitled: "**Strategic Human Resource Factors and Implementation of Safety Management Measures in the Aviation Industry in Kenya: A Case of Kenya Airports Authority**"

Any assistance offered to her will be highly appreciated.

Yours Faithfully,

DR. Kimani Gichuhi,

MBA, Coordinator,

School of Business,

Africa Nazarene University.

APPENDIX IV: RESEARCH PERMIT



REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **976622**

Date of Issue: **29/May/2024**

RESEARCH LICENSE

This is to Certify that Ms.. Ericah Chebet Chebet of Africa Nazarene University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Mombasa, Nairobi on the topic: STRATEGIC HUMAN RESOURCE FACTORS AND IMPLEMENTATION OF SAFETY MANAGEMENT MEASURES IN THE AVIATION INDUSTRY IN KENYA: A CASE OF KENYA AIRPORTS AUTHORITY for the period ending : 29/May/2025.

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Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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See overleaf for conditions

APPENDIX V: NAIROBI MAP

