EFFECT OF FLEET MANAGEMENT PRACTICES ON COMPETITIVE ADVANTAGE OF THE DOMESTIC AIRLINES IN KENYA

BY

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DECLARATION

Declaration by Candidate

I declare that this is my original work and has never been presented for a degree in any other university or approved by any other person. No part of this work should be produced or reproduced with/or without my consent or that of Moi University.

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I dedicate this research project to my family, friends and colleagues for their support and bearing with me during this process. I will remain forever grateful

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ABSTRACT

This study focused on the effects of fleet management on the competitive advantage of domestic airlines in Kenya. The aviation industry is evolving rapidly hence, fleet managers are expected to move with speed in addressing the contemporary changes such as fluctuations in consumer needs. The paradigm shifts have direct impacts on the nationwide competitive landscape. However, Kenyan airline industry as a whole is at risk of losing competitive edge to rivals whenever the fleet management styles employed by the industry players do not accurately match the consumer needs. The study, therefore, aimed at exploring the correlation between fleet management practices and competitive advantage. This study was guided by the following specific objectives: First, to establish the influence of aircraft acquisition and maintenance on the competitive advantage of the domestic airlines. Secondly, to determine the influence of fuel management on the competitive advantage of the domestic airlines, thirdly, to assess the influence of fleet management systems on the competitive advantage of the domestic airlines and fourth, to evaluate the influence of human resource management on the competitive advantage of the domestic airlines in Kenya. The study was anchored on resource-based view, replacement theory and competitive advantage theory. This study employed an explanatory research design. Census method was used to explore the views of 208 managers and executives involved in fleet management activities at 10 randomly selected airlines. The respondents answered questionnaire relating to the empirical observations on the relationship between the airlines' management and their competitiveness. The results were coded into SPSS for subsequent data analysis through descriptive statistics and inferential statistics. Regression analysis was performed on the dependent variable and each of the independent variables. The study demonstrated positive correlation between aircraft acquisition and maintenance (p value = 0.0001), as well as, fuel management (p value = 0.0001) and competitive advantage. On the other hand, fleet management system (p value = 0.0001) and human resource management (p value = 0.0001) were both insignificant. Therefore, it was determined that a firm's competitive advantage increased depending on the amount of investment it made in new aircraft and fuel management techniques. To compete favourably with their rivals, airlines need upgrade their fleet management systems and human resource practices. The airline may need to make investments in pertinent information technologies to support its requirements. The study suggests that staff at the airport should undergo frequent refresher training, workshops, and seminars with the goal of improving their skills in their specialized fields. Future research should focus on the impacts of such inventions on the ability of the domestic airlines to increase market share at the global level.

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ABBREVIATIONS AND ACRONYMS

ANOVA: Analysis of variance

CA: Competitive advantage

et al: and others

KCAA: Kenya Civil Aviation Authority

KAA: Kenya Airports Authority.

KQ- Kenya Airways

IATA: International Air Transport Association

ICAO: International Civil Aviation Organizations.

RBV: Resource-Based View Theory

SPSS: Statistical Package for Social Sciences

OPERATIONAL DEFINITION OF TERMS

Fleet management: refers to the processes involved in monitoring and increasing the efficiency of flights and other primary services offered by an airline such as cargo delivery, provision of meals, and journey planning (Gunarathna, 2020).

Aircraft Acquisition and Maintenance: the logistical procedures involved in buying and maintaining aircrafts as strategies for gaining competitive edge over rivals (Gunarathna, 2020).

Fuel Management Systems: processes associated with determination of the trends in jet fuel prices and effective use of the fuel to ensure exemplary performance in terms of minimal disruptions resulting from unforeseen operational costs, fuel shortages and cancelled trips (Gunarathna, 2020).

Fleet Management System: computer applications and other technologies used by fleet managers to ensure seamless coordination in scheduling their trips (Gunarathna, 2020).

Human Resource Management Styles: The recruitment and capacity enhancement programs used by the airlines to increase their employees' knowledge and efficiency in handling fleet management tasks (Gunarathna, 2020).

Competitive Advantage: operational factors or access to valuable, rare, imperfectly imitable, non-substitutable resources that enable the airlines to perform better than their rivals such as brand equity, superior service and product qualities, cost leadership (Gunarathna, 2020).

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter cover the background of the study, which entails description of the concept, and context that underlies the study. The section also presents the statement of the problem, the research objectives, research hypothesis, and significance and scope of the study.

1.1 Background to the Study

The commercial airline sector is currently undergoing a change. Consumer satisfaction, competitive advantage, revenue and expenses, organisational culture, technological development, and a wide range of customer expectations are just a few of the contemporary concerns that have a substantial impact on every part of the organisation. Effective fleet management is, therefore, a prerequisite for success, as well as, acquisition of competitive advantage. The competitive edge allows organization to implement unique strategy for fulfilling consumers' needs, filling market gap or revolutionizing the entire industry. An aviation with appropriate organizational structures and systems for monitoring the macro, micro and messo-environment and launching a mix of tested and novel strategies for maximizing stakeholders' value are better positioned to attract and retain increasing customer bases. Fleet management refers to various activities such as maintenance, leasing, acquisition, selling, financing activities that make the most out of the aircrafts owned by an airline. The practices ensure that aviation companies minimize various risks associated with aircraft investment, achieve efficiency and maintains high productivity levels.

Globally, prosperity of any airline depends on how best it utilizes the available resources to satisfy customer needs, offer rare services or distinguish its product

portfolio from other industry players. As Pearson et al. (2015) observed, the rivalry in the market is pushing the firms to seek for alternative ways for increasing their market share. In this case, effective utilization of financial, information communication technology and human resources results into long-term goals. Seo, (2020) posit that an aviation industry's capacity to achieve a lasting competitive edge will depend on how it distributes and uses the resources at its disposal. For example, the prudent use of financial resources often translates to lean structures thereby allowing for competitive pricing strategies. According to Amankwah-Amoah (2018), robust fleet management plays a critical role in the success of leading global airline companies such as Air Asia, Qantas and Ethiopian Airlines. Air Asia continuous growth is attributable to its provision of budget air service to carter for the needs of the mass market. Consequently, it secured a significant competitive advantage and sustainable increase in returns on investment (Payne et al., 2018). Similarly, astute organizational leadership enabled Quantas Airlines to revolutionize its operations thereby boosting the financial prospects over the years. The airlines transformed from loss making venture to one of the world's leading airlines. It made a net loss of $2.8 billion in 2014 but rapidly recorded sales growth making net profits of $688 million by mid-2016 (AlRomeedy, 2019).

The worldwide airline business has been severely impacted by rising fuel prices, unreliable yields, lacklustre traffic levels, security problems, and increased taxation for the previous few years, despite growing confidence for the airline sector's revival in light of recent profit gains (Button, 2017). At the same time, more airlines are entering the market and new ones are competing for the emerging opportunities. Around the world, there have been a number of deregulations and open skies accords that liberalised commercial aviation services and opened up international airports and cross-country

routes. Therefore, airline must be able to navigate the disruptions through innovative scheduling of aircrafts and other fleet management styles so as to remain profitable.

Regionally, African aviation companies are aggressively pursuing the emerging opportunities at the frontier of global market. However, they still lag behind their peers from other continents due in part to leadership dysfunctions. A number of African airlines have gone bankrupt and shut down their business operation in some markets (Amankwah-Amoah and Debrah, 2017). For example, the globalization of the aviation industry and market saturation have driven airlines such as Ghana Airways, the Nigeria Airways and Air Afrique out of business (Clark, Dunn and Kingsley-Jones, 2015). Other African airlines are also improvised to compete globally. Due to anti-competitive actions by some airline operators, "fair" competition has completely collapsed in South Africa (Mukhezakule and Tefera, 2019). The nature of the competition and the state of the economy have made it difficult for new competitors to enter the market. The majority of airlines also struggle to establish and maintain competitive advantages.

Locally, the Kenyan airline industry is primarily dominated by Kenya Airways followed by Jambo Jet and Airkenya Express as shown in figure 1 below

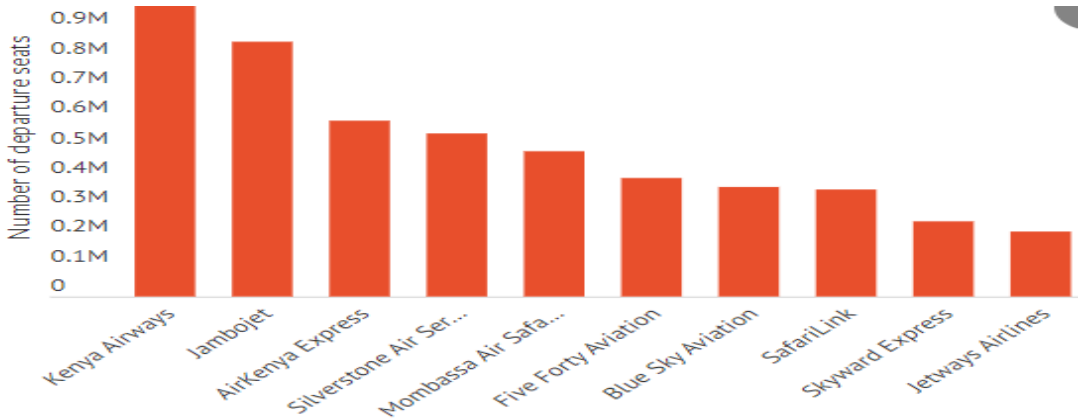

Figure 1.1: Top Ten Domestic Airlines in Kenya (Source: Casey, 2019)

The airlines are facing stiff rivalry and thus each industry player must efficiently manage its aircrafts so as to maintain or gain market share.

Overall, fleet management plays central role in the growth of the global aviation industry. The fact that more than three billion people use the services offered by the sector each year also helps to understand the importance of the aviation industry (Shaw, 2016). In fact, IATA (2022) project that the number of air travellers will exceed 4 billion by 2024. Fleet managers ensure that there are sufficient and quality aircraft to ferry the clients to their respective destinations in a timely manner. Currently, there are around 28400 aircraft fleets around the world. In Kenya, the inadequate fleet management remains a threat to the industry's success. Although Kenya Airways controls the largest share of the market, the international competitors such as Ethiopia Airlines are more profitable. The losses by the local airlines is competitive disadvantage. For example, KQ reduced its number of fleet by two in 2022 as a cost cutting measure (Anyanzwa, 2022). The national airline surrendered two Embraer 190 aircrafts after the lease expiry to reduce the overall operational costs. As a result, KQ's current leased planes are 23 and it owns 18 aircrafts. Airkenya Express (2022) has a fleet of 10 planes, 3 Cessna Grand Cravan C208B, 3 De Havilland Canada DHC-6-300 and 2 De Havilland Canada Dash 7. While Jambojet (2022) has a fleet of DDe Havilland DHC 8 Q400. The fleet characteristics such as efficiency in management contributes to the airline's competitiveness. For example, the Next Generation aircraft owned by Jambojet are fuel-efficient, provides comfort to passengers and have minimal carbon footprint.

On the other hand, a number of airlines have failed partly due to the mismanagement of resources including the aircrafts. For example, Jetlink airline went bankrupt as it hardly generated enough revenues from the fleet to sustain troubled airline was closed

down leading to loss in jobs by its three hundred and fifty employees (Wafula, 2020). The income from the ticket sales were not able to settle the ksh.14 million fines, as well as, settle the ksh703 million loan it obtained from Equity bank (Fayo, 2013). Similarly, the Fly540 airline has been struggling to stay afloat. Operating with negative margins means that the airline is at disadvantage in acquiring new aircrafts and launching new routes so as to expand its customer bases. Such empirical observations call for more innovative approaches for achieving long-term market success. Therefore, this study sought to answer the question: How does fleet management practices influence competitive advantage of the domestic airlines in Kenya?

1.2 Statement of the Problem

The globalization-driven market that the airline sector now finds itself in is extremely competitive. Domestic airlines are becoming more aware of their shortcomings as a result of competition from the multinational operators, which is motivating them to proactively manage risks and achieve sustainability in these challenging times (Farah et al., 2018). While all of its elements are considered, the issue that an airline faces when making fleet planning decisions is quite complicated. The airline must first consider future demand, which is inherently erratic, as well as its seasonality (months, days of the week). The long-haul destinations are typically taken into account separately from the short- and mid-haul destinations since they require fleets with different characteristics (pertaining to aircraft size and, in particular, flying range). A portion of the uncertainty that airlines must manage is related to how the markets they serve are developing economically and demographically, and a second portion is related to competition from other airlines, including potential new entrants in those areas.

Future demand is dependent on the flight frequencies and schedules the airline offers in each market, in addition to the numerous other elements that determine service

quality (seat space and legroom, courtesy of employees, on-time performance, etc.). It is important that domestic airline consider their financial concerns. Because newer airplanes are typically more fuel-efficient than older ones, replacing older ones is generally favourable from the perspective of operational costs. However, investing in a new aircraft entails a large financial commitment. The option is to lease aircraft for operational purposes, but over the long haul, leasing is more expensive than buying. According to Farah et al. (2018), the entry of new competitors in the market makes competition very stiff domestically. For example, there is rising demand for quality services and value for money by the consumers thereby placing pressure on the fleet managers to find means for outperforming their rivals (Gikonyo, 2018).

Although a number of studies by Pedraza-Martinez and Van Wassenhove (2012) Besiou et al. (2012), Gitahi and Ogollah (2014) and many others have explored almost the same area, significant knowledge exists to date. First, the studies mostly focused on the impact of fleet management on road transport or other supply chain benefits such as cost reduction, sustainability and value maximization and not necessarily on competitive advantage. Similarly, the economic downturn that began during the first wave of coronavirus pandemic is escalating with the continued civil war between Ukraine and Russia leading to serious obstacles. For example, jet fuel prices have more than doubled in the country. The difficulty in this situation stems from the realization that practical outcomes cannot be obtained without simplifications. The fleet planning and management issue pertaining to domestic airline flights would be simplified and organized as the management's initial responsibility. As such, studying the effects of fleet management practices on a firm’s competitiveness provided the insights needed to promote steady growth of the Kenyan aviation sector.

1.3 Study Objectives

1.3.1 Main objectives

To examine the effect of fleet management practices on competitive advantage of domestic airline companies in Kenya.

1.3.2 Specific objectives

i. To establish the influence of aircraft acquisition and maintenance on the competitive advantage of the domestic airlines in Kenya

ii. To determine the influence of fuel management on the competitive advantage of domestic airline companies in Kenya.

iii. To assess the influence of fleet management systems on the of competitive advantage of the domestic airline companies in Kenya

iv. To evaluate the influence of human resource management on competitive advantage of the domestic airline companies in Kenya.

1.3.3 Research Hypothesis

$H_{01:}$ Aircraft acquisition and maintenance has no significant effect on the competitive advantage of the domestic airlines in Kenya

H_{02}: Fuel management has no significant effect on the competitive advantage of domestic airline companies in Kenya.

H_{03}: Fleet management system has no significant effect on the competitive advantage of the domestic airline companies in Kenya.

H_{04}: Human resource management has no significant effects on the competitive advantage of the domestic airline companies in Kenya.

1.4 Significance of the Study

Aviation Industry

The study's conclusions would aid the aviation industry in understanding the necessity to manage resources sensibly in order to gain a competitive advantage over rivals in the market. The study's findings would assist in the development of regulations for the aviation sector. The Kenya Aviation Authority, which is in charge of regulating the use and distribution of resources to the state airlines, might find the results to be significant.

Government Policy

The study's conclusions would assist the government, through regulatory agencies, in formulating regulations and any incentive support programmes in accordance with best practices that could help Kenya's aviation sector perform better. The policies that will be created can aid in preventing strategy formulation bottlenecks.

Academic Field

Future academics, researchers, and scholars aiming to investigate organisational management and competitive advantage in the airline sector may find the study's findings useful as a body of knowledge. The report could be a useful resource for academics. Additionally, it can help specialists who work to successfully manage aviation companies in establishing and preserving a competitive edge in the market.

1.5 Scope of the Study

The study focused on the influence of fleet management practices on competitive advantage of the domestic airlines in Kenya. The geographical scope was all domestic airlines operating in Jomo Kenyatta International Airport. The target population was 433 employees drawn from the 10 local airline carriers operating at the Jomo Kenyatta International Airport in Kenya. Time scope: the field data collection for the study was carried out in 2022.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The literature that was studied in order to conceptualise the forthcoming research is discussed in this chapter. Theoretical review, conceptual framework, empirical review, research gap, critique of prior literature, and summary are all covered in this section.

2.1 Concept of Competitive Advantage

Competitive advantage is a complex concept that can be defined from various schools of thought (Majeed, 2011). From the perspective of business management, it refers to the extent to which enjoys greater efficiency in creating greater value for stakeholders than the rivals (Ibrahim and Primiana, 2015). Such a firm may possess unique knowledge, resource or technology that enable the managers to deliver superior values. Economists also view competitive advantage in terms of monetary benefits. For example, competitive advantage exists whenever an organization generate the same benefits as competitors but at a cost advantage, or deliver benefits that exceed those of competing products and services (Sigalas, 2015). In other word, economists define the term in terms of performance which may include high relative profitability, above average net margins, benefit-cost gap, and superior financial health. On the other hand, marketers view competitive advantage from the sources or determinants such as brand equity, ability to produce products with superior qualities, control largest share of customer bases and cost leadership ((Kryscynski et al., 2021). This study adopted competitive measures recognized by aviation regulatory bodies such as brand equity, cost leadership, service and product qualities, access to resources or knowledge not available to other market players, and highly skilled labour.

The rapid changes in the Airline industry and new processes on cost control are key for success through global competition. Such inclinations demand that service firms should respond to uncertainty more rapidly. Therefore, the emergence of world-class competitors within the domestic and international business require service firms to response by revamping their processes for the purposes of fulfilling market needs (Omwonyo, 2016). Harnessing sustainable competitive advantage is a critical success factor in the industry (Amita et al., 2011). The airlines must shift exploration from conventional way of thinking to strategic thinking in order to wave through competition.

Figure 2.1 below indicates that household names such as British Airways, Qatar Airways, Emirates and Turkish Airlines also hold significant proportion of the Kenyan aviation market.

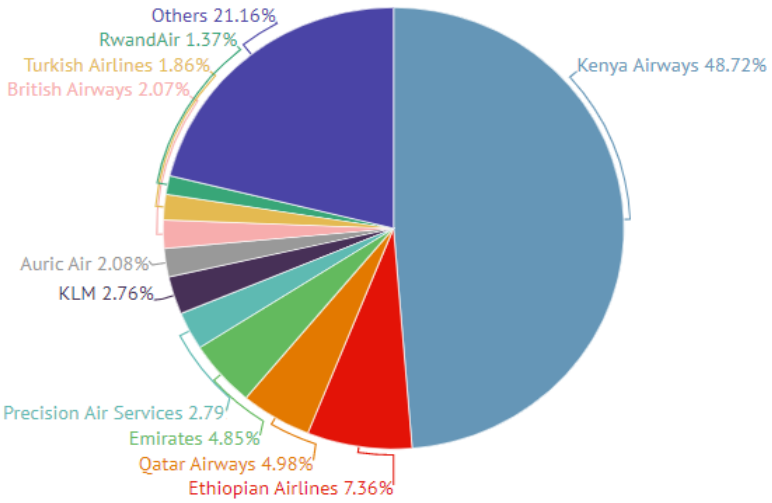

Figure 2.1: Market share of International Airlines operating in Kenya
(Source: Casey, 2019)

Because they can carry out specific organisational procedures better than their rivals, some firms have an edge over others. For example, gaining better control of important resources or unique knowledge leads to either cost better services than the rivals. Porter

(1997) outlined three general strategies—cost leadership, differentiation, and focus strategy—that allow organisations to gain a competitive advantage. Cost leadership enables firms to enjoy advantage in setting prices that meet the consumers' financial needs without hurting the company's profitability. Differentiation occurs whenever the firm offer unique service portfolio from those provided by other industry players (Martin and Riel, 2019). While focus strategy enables a firm to dominate a market niche by specializing in a specific market segment. For example, offer low cost flights has been part and parcel of Southwest Airlines' success story.

2.2 Fleet Management Practices

Fleet management refers to the act of monitoring and increasing the efficiency of flights and other primary services offered by an airline such as cargo delivery, provision of meals, and journey planning (Gitahi and Ogollah, 2014). The main goal of fleet management is to completely reduce the costs involved with staffing and transportation while also greatly reducing the hazards related to running an airline. The process entails the management of aircraft operations across major departments such as technical, commercial and legal. Fleet management component include financing aircrafts, maintenance, tracking of assets, fuel management as well as health and safety management amongst others.

When it comes to fleet management, which includes decisions on aircraft acquisition and aircraft phase out (replacement), there aren't as many articles available as there are in the topic of fleet assignment, which is typically utilised to meet demand in flight scheduling and entails the assignment of aircraft to routes Gitahi and Ogollah, 2014). There are a number of causes for this gap in the literature, but the two most significant ones are: In addition to the fact that these decisions are based on strategic plans and

judgements, they also call for highly sensitive data and analysis, which is typically even more private.

The goal of a study by Wei (2016) was to determine whether airport landing fees have an impact on fleet planning decisions regarding the acceptance of larger aircraft with less frequent service in an effort to cut landing fee costs. The study, which was carried out in a particular duopoly market environment, discovered that higher landing fees do, in fact, influence airlines' decisions regarding aircraft size, leading them to select larger aircraft with lower frequency service and additional incentives from lessening airport congestion can support this choice. This study's focus was obviously restricted to landing costs and how it affects the choice of aircraft size, but it still demonstrates that certain fees can influence that decision.

2.2.1 Aircraft Acquisition and Maintenance

The aircraft management lifecycle involves multiple activities affecting directly on a company’s competitive advantage. Purchase of new flights, lease arrangements, aircraft repossessions, lease returns, redelivery, repairs and maintenance all affect the cost of operations, customers’ satisfaction levels and ability to control a larger market share than a rival. Any fleet management organisation must prioritise maintenance in all of its operations. It includes concerns with managing spare components, normal maintenance, and oil changes. Previous research has shown that a variety of relatively low-cost initiatives, including crew training, aircraft maintenance, and design, can reduce fleet operation fuel use by 10% or more. According to Chevrolet (2015), changing the oil can lower fuel economy and is mostly connected to gas mileage. One of the most crucial maintenance tasks may be a routine oil change because it is essential to an engine's proper operation. Moreover, data-based inventory management enables the firms to replace the old parts of the aircrafts with technology-advanced components.

The value-added technologies enhance the customers' experience, reduce air pollution and increase safety of the flights. For example, the interior designs of the aircrafts can be fitted with 5G networks, comfy seats, and other décor to create the right ambience and keep the passengers entertained throughout the journeys.

2.2.2 Fuel Management

Fuel management provides one of the key aspects of fleet operation as it facilitates the movement of the aircraft at any point in time. Effective utilization of technology in predicting the trends in jet fuel prices results in exemplary performance by eliminating the disruptions resulting from unforeseen operational costs, fuel shortages and cancelled trips (Gitahi and Ogollah, 2014). Airlines with comprehensive systems for monitoring the market trends and optimize fuel related cost are better positioned to attract and maintain greater market share than the competitors (Al Amin and Maina, 2020). Consequently, it is important that the airlines institute the right measures that promote efficient management of fuel.

2.2.3 Fleet Management Systems

Real time monitoring of the flight schedules and other macro environmental factors affecting a firm's operations plays key role in becoming an industry leader (Crainic and Laporte, 2022). The technologies enable the fleet managers to become many steps ahead of the rivals by proactively managing risks such as flight delays, flight cancellations, and incidents that may occur due to bad weather situations. According to Lee et al. (2018), robust GPS-enabled fleet, dispatch and maintenance software can be integrated with the firm's enterprise resource planning software to ensure seamless coordination. The systems allow for transparent scheduling of flights prioritizing urgent tasks and addressing any adjustments easily and efficiently.

Lee et al., (2018) conducted a study on MCDM approach for selecting green aviation fleet program management strategies. The study states that in order to improve environmental protection without accelerating climate change, green aircraft fleet management is a proactive strategy. Given corporate social responsibility (CSR) guidelines and environmental concerns, the aviation sector needs to strengthen its fleet management systems. The creation of a green aviation fleet includes intricate interactions between technology, operation, infrastructure, and economic performance. In order to obtain the best green aircraft fleet management strategy decisions, this study suggests a multi-criteria decision making (MCDM) approach that combines the decision-making trial and evaluation laboratory (DEMATEL), analytic network processes (ANP), and zero-one goal programming (ZOGP). Our analysis demonstrates that the proposed mixed strategy portfolio for managing the green aviation fleet may be created with a minimum of resources.

In a study by Rosskopf et al. (2014), fleet plans that maximise the trade-off between environmentally friendly A/C to the cost aspects of such aircraft were developed using a multi-objective optimization model. The study took into account environmental restrictions, such as attempting to reduce the environmental impact of aircraft selection or figuring out how an airline's environment affected fleet planning.

2.2.4 Human Resource Management Styles

Strategies used by an airline to recruit the top talents in the industry, improve their skills and motivate them to achieve the fleet management goals often translate into competitive edge (Hesketh et al., 2015). Having highly skilled workforces alongside corporate culture that fosters creativity ensures that the airlines always launch innovative ways for managing passengers' needs and overcoming the obstacles that

may affect the smooth coordination of the flight schedules. The pilots, flight attendants, safety engineers, traffic control personnel and other team members develop healthy working relationships that in turn lead to value maximisation and high customers' satisfaction levels. According to Crainic and Laporte (2012), the coordination results whenever training occurs and employees are also provided with manuals to promote simple and rapid organization-wide equipment adoption. Other techniques, such as brief presentations, posters, and notices with suggestions for changes, are crucial for improving the staff members' expertise and understanding in providing high-quality service.

2.2 Theoretical Literature Review

2.2.1 Resource-Based View Theory (RBV)

Pfeffer and Salancik created this idea in 1978. RBV is a measure used in economics to assess a firm's strategic resources. The model's basic tenet is that a company gains a competitive edge by applying the collection of priceless resources at its disposal to provide uncommon, distinctive, non-imitable, or unmatched goods and services (Wernerfelt, 1984). RBV views organizations as a collection of productive resources and effective use of internal resources creates attributes enabling the firms to outperform their rivals. This theory provides an explanation for why companies within the same sector experience systematically changing performance over time (Chandran, 2014). Working towards creating valuable, rare, imperfectly imitable, non-substitutable product or service portfolio translates to long term success.

As such, RBV is relevant to this study because it presents strategies for exploiting opportunities in the market, thwarting competitive threats, as well as, improving efficiency and effectiveness. It can be applied by the fleet managers to differentiate their companies' services from those of the close competitors (Chandran, 2014). When

resources are effectively utilised, affirm is able to outsell its competitors by providing high-quality goods and services. The business is also able to hire talented workers and buy the tools it needs to compete more effectively in the market.

2.2.2 Replacement Theory

The concept of replacement theory is concerned with procurement of new parts of machines and equipment for increasing the efficiency of damaged ones (Gitahi and Ogollah, 2014). In this study, the replacement may be necessary due to the deteriorating usefulness of an aircraft, computers and other machines used in scheduling flights and offering related services to the stakeholders (Bagui et al., 2012). Over the years, a lot of scholars have focused on the issues of machine replacement as a crucial topic in operation research and management practises (Huang and Rust, 2018; Kasuma et al., 2021). The researchers concur that establishing systematic strategies for procuring sustainable and technologically-advanced parts of machine at the most affordable prices add greater value in a firm's success. For example, airlines with high tech supply chains are better placed to deliver the best services thereby acquiring growing customer bases.

2.2.3 Competitive Advantage Theory

According to the competitive advantage principle, corporations should pursue strategies that produce high-quality goods to sell in the market for high prices. Porter (1985) highlights that national policies should centre on productivity growth. Competitive advantage results from the firms' access to cheaper production inputs as compared to the rival firms. An airline can increase the competitive advantage by maximizing economies of scale (Camisón et al., 2007). In this case, an aviation company can expand its routes to diverse markets, increase number of flights or acquire large capacity aircrafts. Alternatively, an airline can work towards acquiring resources and capabilities that are superior to those of its competitors. Consequently, the theory was applied to

gain informed opinion on the interplay between the airline operations, as far as fleet management is concerned, and ability to acquire and sustain competitive advantage.

2.3 Empirical Review

2.3.1 Aircraft Acquisition and Maintenance on Competitive Advantage

Several scholars have conducted studies on the roles played by aircraft acquisition and maintenance on competitive advantage. For instance, e-Airlines: strategic and tactical use of ICTs in the airline business was the subject of a research by Buhalis (2014). In order to investigate ICT use in the modern airline industry and to discuss recent trends in the sector, the study involved extensive research, including exploratory research with airline executives. In addition to employing intranets and internal systems to strengthen tactical and strategic management, the work showed how the airline industry used the Internet to enhance its distribution strategy and cut expenses. Extranets were also gradually being utilised for partner communication as well as to promote B2B interactions. The work proved that ICTs are essential for airline strategic and operational management and have a direct impact on the industry's competitiveness in the future. Similar to this, a study by Bell (2013) found that using fuel additives to keep the engine injectors clean all the time can assist maintain regular maintenance lengthen the lifespan of the aircraft engine.

Maintenance is a common limitation that is taken into account. These constraints are severe, particularly in the civil passenger aviation industry. Under the restrictions imposed by maintenance requirements, Kozanidis (2019) aims to ensure maximum aircraft availability. He also suggests two heuristic approaches for handling significant occurrences of the issue. Due to the more complex scheduling needs for aircraft maintenance as well as the stricter aviation authority constraints on maintenance

intervals and events, the created model, even with the heuristics for large scale problems, is not directly suitable for civil aircraft.

In road and maritime transportation, fleet planning issues have received a lot of attention, particularly when they are combined with issues with vehicle routing. According to Hoff et al. (2010), who conducted a thorough literature analysis on strategic fleet planning, the mathematical modeling of the issue should take into account as many relevant revenues and expenses associated with the fleet's acquisition and operation. Potential long-term contracts and spot markets should also be considered in the models. On the other hand, unless transportation demand is substantially predictable, including (specific) routing aspects is typically pointless.

Research on fleet planning issues in aviation has been far more constrained and has only recently piqued the scientific community's interest. Belobaba et al. (2015) highlight the main characteristics of the issues together with a brief explanation of the decision support techniques employed by airlines to address them. Clegg (2015) has detailed British Airways' fleet planning procedure in a study. Even though technical and performance features of different aircraft types and economic/financial analyses frequently predominate fleet planning processes inside most airlines, there are a number of other factors that should not be ignored.

A top-down approach (based on high-level aggregate analysis) or bottom-up approach can be used to evaluate the economic and financial viability of various aircraft alternatives to support fleet planning (based on considerably more in-depth data analysis and predictions by flight and route). Gibson (2010) looked at the accuracy and worth of financial valuation models from both theoretical and practical perspectives

while analysing many of the current fleet planning processes from a financial perspective.

There haven't been many studies that combine the commercial and economic sides of fleet planning. A stochastic dynamic programming model was created by Hsu et al. (2011) and applied to EVA Airline in order to optimize airline decisions on the acquisition, leasing, or disposal of aircraft over time (Taiwan). According to the findings of their study, the airline would be forced to lease rather than buy aircraft due to severe demand variations, allowing for more flexibility in fleet management. Given that it considers both changes in demand and the condition of the aircraft, this can serve as a model for the airlines when making replacement decisions.

Similar to this, Bazargan and Hartman (2012) offered an integer-programming approach to choose the number of planes to buy, rent, or sell in order to lower the total discounted costs over the planning horizon. The authors employed two American airlines with different corporate structures to test their methods. The results show that, in both cases, aircraft leasing was the best decision. From a more practical perspective, Listes and Dekker (2005) looked into the fleet planning issue to determine an airline fleet composition that was reliable with regard to the concept of dynamic fleet allocation to routes in response to transitory variations in demand. The authors use a stochastic programming model solved through progressive hedging to determine the optimum fleet given the flight schedule. As a result, the results from this setting should only be used as input for the analysis because there are undoubtedly many other aspects that must be taken into account before drawing any conclusions.

The features from the fleet composition model proposed by Listes and Dekker (2005), which does not consider leasing options, are combined with those from the fleet

replacement models proposed by Hsu et al. (2011) and Bazargan and Hartman (2012), which consider the various financing options but ignore significant operational issues. The basic innovation of our approach is the integration of both types of information, which successfully captures the essential components of a long-haul fleet planning difficulty (without going into details that would compromise its applicability in practice). Additionally, it considers seasonal variations in demand and determines the number of flights for each origin-destination pair endogenously (in the Listes and Dekker model flights are made according to a predefined schedule).

2.3.2 Fuel Management and Competitive Advantage

Studies have shown that how a firm manage fuel affects its overall competitiveness. Innovativeness in addressing the fluctuation in fuel prices and supply chain activities leads to advantage in lowering overall operational costs and launch of superior services. A study on the competition tactics used by Turkish airline businesses was done in 2012 by Kilinc et al. In the study, qualitative research methodology was employed. The outcome shows that the competitive strategies put into place put a special emphasis on achieving cost leadership. The Turkish aviation companies with efficient fuel management systems were better placed to satisfy the customers' needs by offering high quality services, as well as, investing in research and development initiatives thereby creating unprecedented ways for filling the market gaps.

According to study by Pearson et al. (2015) that concentrated on the roles of intangible resources of competitive advantage, utilizing the core bundle of resources in enhancing a firm's competency levels attracts high returns in the end. For example, the competitiveness of top three players of the 49 Asian airlines that were studied, resulted from the unique ways applied by the firms in transforming the intangibles such as slots,

brand, and product and service reputation into rare, unmatched and non-imitable competences.

2.3.3 Fleet Management Systems and Competitive Advantage

Empirical research reveals that deployment of integrated enterprise resource management systems are prerequisites for creating superior fleet or value-based supply chains. A study by Barney (2007) showed that a competitive advantage results from seamless coordination among all business units or different departments of an organisation. Availability of intelligence systems enable the decision makers to determine how best to take use of a certain market position, run effectively, draw in clients, and outsmart rivals. This implies that the airlines leveraging Big Data Analytics in their fleet management systems are at advantage of continuously improving their service and product portfolios.

Gikonyo (2018) also conducted a study on the correlation between organisational resources and long-term competitive advantage within a limited few Kenyan aviation companies. A descriptive survey design was used in the study. The usage of ERP and fleet management technology was found to have a substantial association between systematic management of organisational resources, which are key sources for long-term competitive advantage. The results particularly demonstrated a positive relationship between knowledge resources management and sustainable competitive. However, the study did not explore how specific fleet management software influences the airline industry.

Pereira et al. (2021), conducted a study on team allocation decision for aircraft fleet maintenance. The study showed that in the dispersion of ideal solutions for the diverse maintenance workloads when less-than-ideal options are chosen, the maintenance cost

could rise by more than 10%. Only 1.9%, 2.3%, and 0.8% of the possible combinations for the SRJ1, SRJ2, and LRJ, respectively, are optimal. This outcome highlights how crucial it is to have a software package to enable the choice of assigning qualified experts to aeroplane maintenance checks. When a brand-new aeroplane is brought into an MRO (Maintenance Repair and Overhaul) for maintenance, the definition of teams must be flexible. The amount of work still needed to be done for continuing maintenance checks as well as the total amount of work on the entering aircraft will be taken into account when deciding which teams to assign to each task. When determining the quantity of work available for the team of technicians, other factors including the availability of materials, support equipment, and tools must be taken into consideration.

Allocating aircraft to flights is a typical research area, usually under specific restrictions or exceptional circumstances. An illustration of such a study is the work done by Hsu and Wen (2013), who created a model to ascertain the best flight frequencies for an airline network utilising supply (flight availability)-demand (passenger demand) interactions. The model they created was made up of a flight frequency determination model and two sub-models that predict passenger flight preferences (i.e., demand).

2.3.4 Human Resource Management Styles and Competitive Advantage

Existing research indicate that human resource management is essential part and parcel of building industry's leading fleet management systems. Oqubay and Tesfachew (2019) showed that hiring innovative, skilled and motivated pilots, line maintenance staff and marketers have transformed small and medium size aviation firms such as Ethiopia Airlines to household names. The top performers are free from the human resource inefficiencies with costly long-term effects on airlines' corporate image. A good example is the Chinese Shenzhen Airlines that is still struggling to overcome the

exposé that it recruited over 103 pilots with fake credentials (Liu et al., 2019). This implies that the domestic airlines should invest in adequate human resource management styles to avoid the adverse effects of such damaging corporate scandal on their competitiveness.

A study by Al-Romeedy (2019) involving 300 randomly selected employees of Egypt Air revealed that establishing strategic agility that enable the staff members to exercise their creativity results in innovativeness, flexibility, high service quality and cost leadership. The airlines must adopt adequate human resource management styles including competitive compensation packages in order to motivate the employees. Ideally, the more satisfied the employees are with the work arrangements, the greater their commitment in pursuing the long-term goals. Such motivated fleet managers and their team members are known to move beyond assigned roles in meeting the consumers' changing needs (Barney and Mackey, 2016; Eaton, 2017).

2.4 Summary and Gap

Although the reviewed studies show that the relationship between fleet management and competitive advantage is a widely researched phenomenon, significant research gap still exist. For example, Burack et al. (2014) conducted a research on Turkish airlines yet the macro and micro environmental factors in the country differs widely from those experienced by the Kenyan domestic airlines. Similar to this, Kilinc, Oncu, and Tasgit (2012) studied the competitive tactics used by airline businesses in Turkey and found that the strategies used place a particular emphasis on achieving cost leadership. However, resource endowments among airline companies differ from firm to firm, necessitating a study of organisational resources in Kenya's setting. The study by Bora and Wainaina (2020) on Kenya Airways' internal organisational dynamics and competitive advantages could not demonstrate how other organisational resources, such

as information technology, affect competitive advantage in the airline industry. Overall, the existing studies show positive correlation between fleet management and competitive advantage. However, more knowledge is needed on the effects of contemporary market fluctuations such as the unprecedented rise in jet fuel prices and emergence of disruptive fleet management technologies on the performance of the domestic airlines.

2.5 Conceptual Framework

The framework shows a graphical presentation concerning existing relationship between the independent and outcome variables. As depicted in the existing literature, the following conceptual framework presents that measures that guided the analysis between the relationship between fleet management and competitive advantage at the studied airlines.

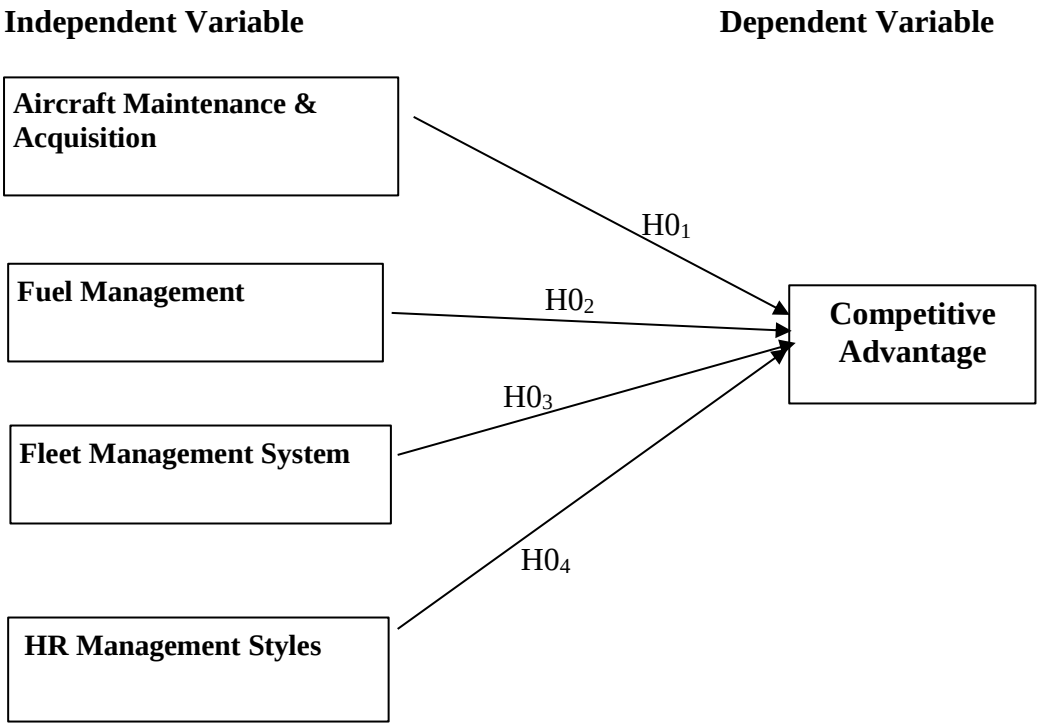

Figure 3: Conceptual Framework

(Researcher, 2022)

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter provides an overview of the research methodology applicable in carrying out the research. This entails the description of the research approach and research framework of the proposal. The section provides the method for data collection, analysis and interpretation. The areas covered include the research design, the target population, sample size, sampling procedure, data collection procedures and instruments and data analysis.

3.1 Research Design

The study used explanatory research design due to its relevance to its significance in achieving the targeted objectives. That is, the approach presented opportunity for examining the causal relationships between elements of fleet management and competitive advantages into details As Saunders et al. (2009) explain, the approach enables the researchers to gain insights into why a particular phenomenon occurs, as well as, predict the future. In this case, the data gathered through survey of fleet managers and other marketing experts was used to conduct a correlational analysis between the variables. The findings, therefore, reflects on the relationship between the fleet management styles and the studied airlines' respective competitive edges.

3.2 Target Population

Population refers to the composition of people or cases with a particular characteristic that the researcher needs to explore. The population of this study comprised fleet managers at Kenyan leading airlines and other decision makers that are privy to the information relating to the associations between the flight schedules, maintenance and the firms' competitive advantage. Therefore, the unit of analysis were 10 passenger

airline companies including Kenya Airways, Jambojet, Fly540, Safarilink, Skyward Express, Air-Kenya, Eastafrican.com, BlueSky aviation, Jetways and Renegade Air. While the unit of observation were managerial employees of the Airline companies. The target population, therefore, were the 219 employees operating at the JKIA, which is the largest aviation facility and busiest airport in Kenya (KCAA, 2020).

Table 3.1: Targeted Population

Department/Office	Total Population
Fleet managers	23
Marketing managers	12
Chief pilots, Line pilots& Maintenance (Engineers)	100
Other Executives (Directors)	80
Safety management	20
Sales representatives	112
Facilitation and housekeeping	80
Human Resource managers	10
Total	**433**

(Researcher, 2022)

3.3 Sample Design

Since the number of targeted respondents are relatively smaller than other stakeholders of the airline industry, census method was employed to ensure that all the managers participated in the study. Complete enumeration of all the people involved in implementing the fleet management policies at the airlines will yield better insights than concentrating on views from a small number of stakeholders (Martínez-Mesa et al., 2016). Moreover, the estimates are not prone to sampling errors leading to accurate results.

3.3.1 Sample size determination

The sample size (n) was determined by the use of Yamane formula (1967), because the population is finite. Yamane (1967) formula is as follows;

$$n = \frac{N}{(1 + N(e)^2)}$$

n= Sample size

N = target population 433

e = margin error 5% (e= 0.05)

In the proposed study, the sample size was;

$$n = \frac{433}{(1 + 433(0.05)^2)} = \mathbf{208}$$

Stratified sample formula (Sample size of the strata = size of entire sample / population size * layer size) was used for the calculation of the proportion of personnel from each category of respondents (Singh & Masuku, 2014).

Table 3.2: Sample size

Department/Office	**Total Population**	**Calculation Sample size**	**Sample Population**
Fleet managers	23	(208/433) * 23	11
Marketing managers	12	(208/433) * 12	6
Chief pilots, Line pilots & Maintenance (Engineers)	100	(208/433) * 100	48
Other Executives (Directors)	80	(208/433) * 80	38
Safety management	20	(208/433) * 20	10
Sales representatives	112	(208/433) * 109	**52**
Facilitation and housekeeping	80	(208/433) * 80	**38**
Human Resource managers	10	(208/433) * 10	**5**
Total	**433**		**208**

(Researcher, 2022)

3.4 Data Collection Procedure

Survey questions were used to collect the quantitative data, and participants were contacted digitally by email to complete the surveys. Snowball approach were used where the researcher approached at least one fleet manager at each of the studied firms who instead helped to recruit their team members into the study. A link to a digital questionnaire was sent to all the respondents after they agreed to participate in the study. The researcher first obtained an introductory letter from Moi University before the

actual field data collection. He further sought for permission from the relevant managers of all the studied airlines.

3.4.1 Data Collection Instruments

The instrument for gathering the study's primary data was a questionnaire that was created. Nadler et al. (2015) claim that as questionnaires ask questions about people's feelings, motives, attitudes, accomplishments, and experiences, they are excellent for gathering information that cannot be seen immediately. The use of questionnaires made it possible to gather both subjective and objective data from the study population, which ultimately resulted in the achievement of statistically meaningful results. The questionnaire used were in form of five-point Likert scale to enable quantification of the results in relation to the correlation between fleet management and competitive advantage. The questions included in the instrument were adopted from earlier studies by Omwoyo (2016), Al Amin, and Maina and Seo and Itoh (2020) and further modified to meet the study objectives. The questionnaires were self-administered to the respondents through drop and pick method (Sekaran et al., 2013).

3.5 Pilot Study

To evaluate the validity of the inquiries contained in the data gathering instruments, ALS Aviation Limited carried out a pilot study (Cooper and Schindler, 2013). The airline operates at Wilson Airport in Nairobi County hence the researcher randomly issued the questionnaire to 20 employees of the airline's employees involved in the company's supply chain activities. As Bryman and Bell (2015) recommends, the pilot study involved a sample of 2 (10% of 20) senior managers and 5 (10% of 50) middle managers. The respondents' input helped to pre-test the validity and reliability of the data. For example, the questions such as, "the growth in my company's brand equity

has consistently grown due to continued investment in fleet management?" resulted from the interaction with participants of the study.

3.6 Reliability of Research Instruments

The internal reliability test of the questions in the questionnaire was tested by use of Cronbach Alpha's reliability coefficient, α. According to Venkatesh et al. (2013), a greater internal consistency is revealed when α moves closer to 1.0 of the items in the scale. Cronbach was also effective in testing for reliability. The alpha values range from 0.589 to 0.769 which is greater than 0.7 hence the data surpassed the acceptable reliability standard. The following guidelines were supplied by Castillo (2009): >0.9 - Excellent, >0.8 - Good, >0.7 - Acceptable, >0.6 - Questionable, >0.5 - Poor, and 0.5 - Unacceptable. The results showed that each variable's Cronbach alpha was dependable for the actual study because it was greater than the permissible threshold of 0.7.

3.7 Validity of Research Instruments

The strengths of the findings were further strengthened by the application of both construct and content validity. Through factor analysis, the research instrument's questions were matched to the study's aims to ascertain how accurately they can be used to draw conclusions about the hypotheses. This is known as construct validity. On the other hand, peer evaluations, data triangulation, and cooperation with the supervisor all served to assure content validity (Cooper and Schindler, 2014). The researcher's classmates reviewed the final report and provided feedback on areas that needed to be improved. The results were also contrasted and compared with those of previous research carried out in various circumstances, news statements from regulatory organizations like ICAO and IATA, and other academic journals. As a result, the results

comprehensively and accurately reflect on the real issues affecting the relationship between fleet management and competitive advantage.

3.8 Data Analysis and Presentation

For the analysis of the quantitative data, regression analysis was appropriate. In this instance, descriptive statistics provided values as the unit of measurement for the data. Several tables, graphs and charts were extracted from the data as shown in the next chapter. The inferential statistics particularly Pearson Correlation were also instrumental in testing hypotheses. Similarly, using the multiple regression analysis technique, each dependent variable was regressed against the dependent variables to determine the impact of fleet management strategies on airline competitive advantage.

Model specification

Gaining a deeper understanding of the relationship between a number of independent factors and a dependent variable is the main goal of multiple linear regression. It is preferable to first present simple linear regression, the most basic type of linear regression, in order to fully comprehend the notion of multiple linear regression. Only one independent variable, X, and one dependent variable, Y, which is a linear function of X, can be used in simple linear regression. For each value xi of variable X, the following equation gives the value y_i of variable Y:

$Y_i = \alpha + \beta x_i + e_i$ ……………………………………………………………………(i)

The effect of fleet management practices on competitive advantage of domestic airlines was established using multiple regression analysis technique. When more than one independent variable ($X(X_1, X_2, X_3, ..., Xn)$ is linearly dependent on the dependent variable (Y), then it is referred to as multiple linear regression, which is effectively a combination of numerous simple linear regressions. The model estimated the influence

of each independent variable on dependent variable. The dependent variable was regressed against each of the independent variables as follows:

Competitive advantage (Y) = $\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$……..(ii)

β_0 = Constant

X_1 – Aircraft acquisition and maintenance

X_2 – Fuel management

X_3 - Fleet management system

X_4 - Human resource management systems

ε = Error term

$\beta_{1....} \beta_4$ = the coefficients associated with X_1, X_2, X_3 and X_4 respectively

3.9 Assumptions of Multiple Regression Models

It is important to note that the equation for multiple linear regression follows the same format as the equation for basic linear regression. However, there are some presumptions concerning the variables that are utilized in multiple linear regression. Nimon, (2012) posits that the relationship between the independent and dependent variables should satisfy assumptions of Multiple Regression Models**.** The test for regression was conducted by use of diagnostics tests such as test for Normality, Heteroscedasticity, and Multicollinearity.

3.9.1 Normality test: This test determines how likely it is that the sample was taken from a typical population. Since the sample size is below 50, the Shapiro-Wilk test was used in the study. If the P-value is more than 0.05 or less than 0.05, the data was regarded as regularly distributed, respectively.

3.9.2 Correlation test: The approach of figuring out how two variables—the dependent and independent variables—relate to one another is called correlation analysis. Because

the study's data will be parametric or quantitative, Pearson correlation coefficient (r) was used. The range of this analysis's correlation coefficient ranges from -1 to +1. The closer a coefficient is to +1 or -1, the greater the link between the two variables. When two variables are negatively correlated, it means that as one variable's value rises, the other variable's value falls. A positive correlation indicates that two variables' values either rise or fall together. The absence of a correlation between the variables is shown by a zero coefficient.

3.9.3 Multi-collinearity test: Two independent variables that are correlated are said to exhibit multi-collinearity. Conducting the relationship between independent variables is crucial because multi-collinearity weakens the statistical power of the regression model to find independent variables that are statistically significant. Multi-collinearity reduces the precision of estimated coefficients and makes it more difficult to identify independent variables. Multi-collinearity testing will be done in the study using the Variance Inflation Factor (VIF). When independent variables are correlated, VIF measures how strongly they are correlated. A score of 1 indicates that there is no correlation, a value between 1 and 5 suggests significant correlation but not a level that calls for corrective action, and a value of 5 or more indicates a critical level of multi-collinearity that requires corrective action.

3.9.4 Autocorrelation (Heteroscedasticity) test: Autocorrelation test is used to determine the correlation in the error term in a panel data. The error terms are said to auto-correlated only if the covariance of the error terms is not equal to zero in different period. Consequently, autocorrelation occurs whenever the error terms in different

period or observations are correlated. The study used Durbin-Watson (DW) test statistics to test for autocorrelation.

3.10 Ethical Considerations

The researcher upheld a high level of confidentiality in handling information provided by the respondents. Participation was also voluntary, whereby only the willing participants were requested to fill the questionnaires. To ensure anonymity and secure the participants' privacy, the researchers did not include the respondents' private data such as names and identification numbers. Additionally, participants received succinct, precise, and explicit explanations of the purpose and boundaries of confidentiality during data collection. Additionally, the researchers strictly maintained the confidentiality of all the data they collected and used it only for the investigation. No respondents' voices, images, or paralinguistic elements could be stored on video or audiotapes. At the same time, the researcher complied with the copyrights and plagiarism laws by acknowledging all the authors, academicians, and researchers behind the borrowed knowledge, theoretical models and ideas. Above all, the researcher obtained permission from relevant authorities and institutions such as Moi University, NACOSTI and the specific airlines before beginning the study.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.0 Introduction

This chapter first presents the findings of the study then discusses the results vis-à-vis the resource-based view theory, replacement and competitive advantage theories, as well as, the outcomes of previous researches.

4.1 Response Rate

The targeted sample size was 219 but 11 of the targeted participants did not return the questionnaire by the time of analysis. As indicated in figure 4.1 below. However, a response rate of 93% was found to be sufficient for learning about the connection between fleet management strategies and competitive advantage among the studied businesses. The response rate was deemed satisfactory because, according to Nyamjom (2013), a response rate of 75% is excellent and reflective of the entire population.

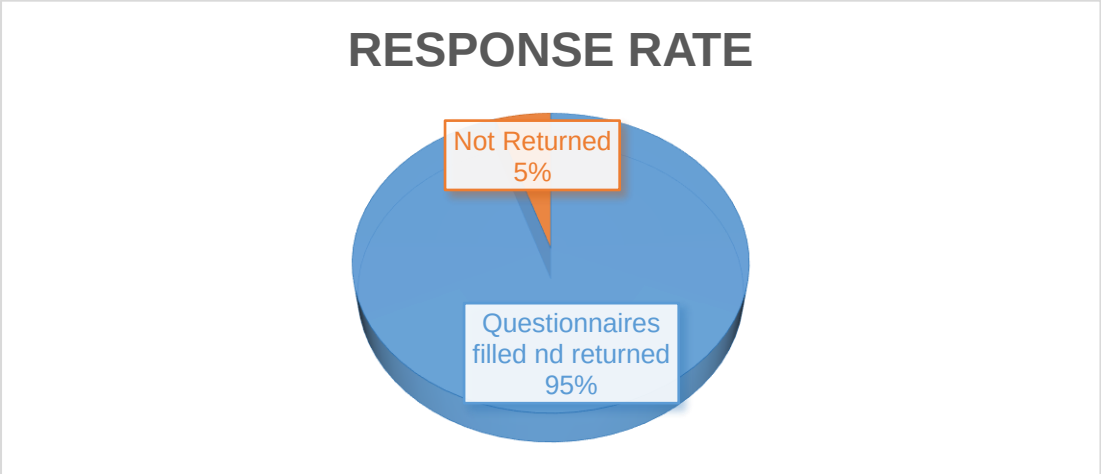

Figure 4.1: Response Rate

(Researcher, 2022)

4.2 Demographic Information of Respondents

4.2.1 Gender

The study determined how the respondents were distributed by gender. In terms of gender equality in employment roles, there were 54.8% males and 45.2% female respondents. The results echoes the study by Rai, Brown & Ruwanpura (2019) which found male dominance in both the formal and informal sectors of various economies.

More females participated in the study than the males as summarized in figure 5 below.

Table 4.1: Gender of the respondents

		Frequency	Percent
Valid	Female	94	45.2
	Male	114	54.8
	Total	208	100.0

(Source: Researchers Survey Computations, 2022)

The frequency table reveals that male frequency count was 114 while the female was at 94 counts.

Having both the female and males expressing their view on the fleet management trends and their impacts on competitive advantage led to diverse perspectives of the relationship between the variables.

4.2.2 Respondents' Position at the Airlines

The respondents worked at different positions at the airlines as depicted in table 4.2 below.

Table 4.2: Respondents' Position at the Airlines

Job Position	**Number**
Fleet managers	18
Marketing managers	12
Chief pilots, Line pilots & Maintenance (Engineers)	142
Other Executives (Directors)	36
Total	**208**

(Source: Researchers Survey Computations, 2022)

Therefore, the distribution of the respondents covered all the fleet management sections and business units involved in monitoring the airlines' competitive edges.

4.2.3 Airlines Studied

The employees of all the targeted airlines were represented in the study as depicted in figure 4.3 below.

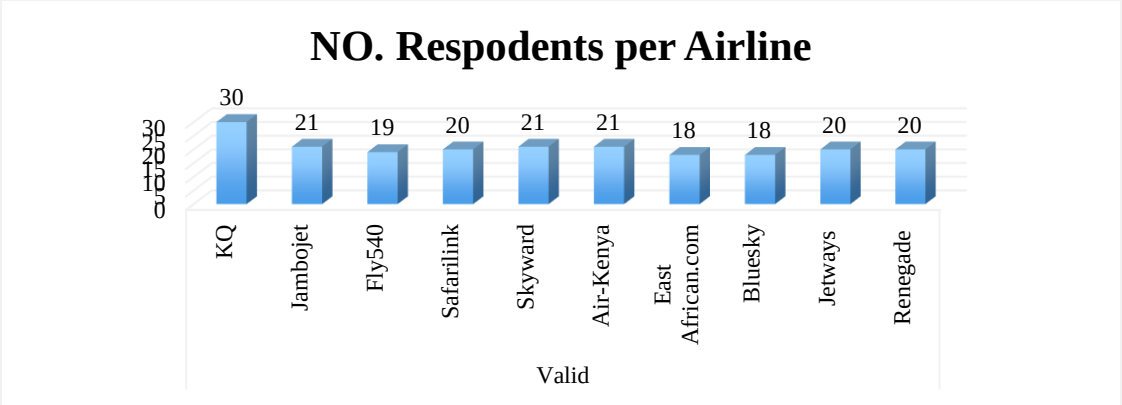

Figure 4.3: Number of Respondents per Airline

(Researcher, 2022)

At least 95% of the targeted respondents per airline participated in the study hence the results reflect on the fleet management practices and their impacts on the competitive advantage at the firms.

4.3 Descriptive Statistics

The descriptive study results based on the variables are presented in this section. The factors used as the study's variables included Aircraft acquisition and maintenance, Fuel management, Fleet management system and Human Resource Management. This study's main objective was to determine how fleet management practices influences domestic airline competitive advantages.

Table 4.3 lists the findings based on means and standard deviations computed from responses given on a 5-point Likert scale. Aircraft acquisition and maintenance (Mean =3.784, SD = 0.59), Fuel management (Mean = 3.986, SD = 0.568), Fleet management system (Mean = 3.986, SD = 0.568) and Human Resource Management (Mean = 3.925, SD = 0.506). The responses' degrees of agreement with the listed aspects of fleet management practices and competitive advantage were reflected by the data collected on this scale. The standard deviation (SD), in particular, measures how much the responses deviate from the true mean. In this instance, an SD of roughly 1 (one) indicates that the respondents' answers to the study's questions as per the questionnaire items varied in opinion.

The results show that respondents had strong beliefs in the positive effects of fleet management incentives at the airline on their brand equity, market share, service quality and cost of operations.

Table 4.3 : Descriptive Statistics

Descriptive Statistics

	N	Mean	Std. Deviation
Acquisitions and Maintenance	208	3.7837	.59297
Fuel Mngt	208	3.9861	.56760
Fleet Mngt	208	3.8250	.60509
HRM	208	3.9250	.50634
Competitive advantage	208	3.7906	.58120
Valid N (listwise)	208		

(Source: Researchers Survey Computations, 2022)

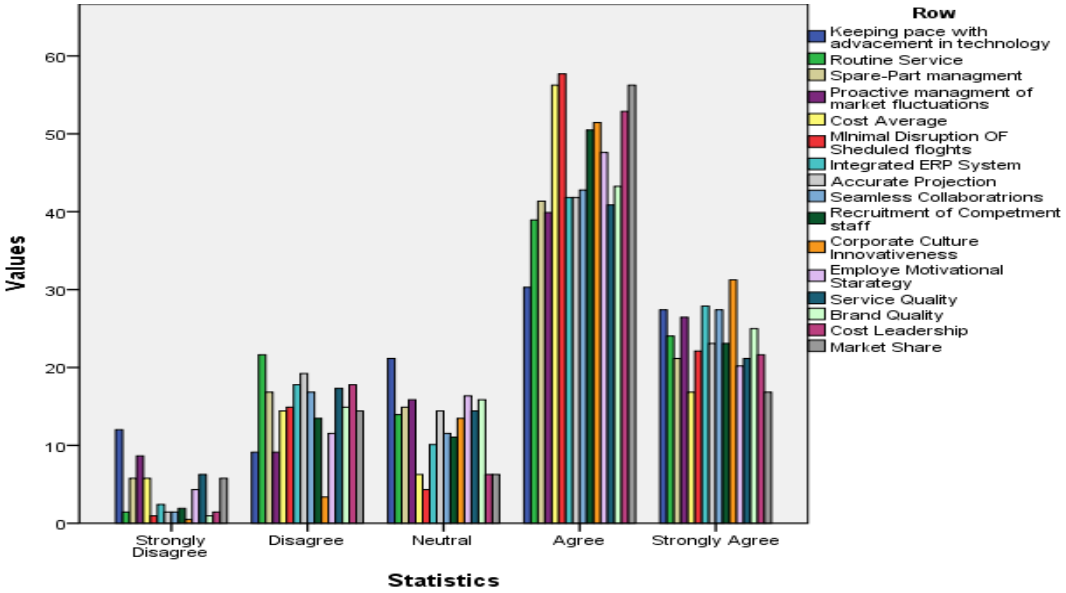

Figure 4.4: Summary of the Responses

(Researcher, 2022)

From the graph, it is evident that the majority agreed that the airlines are effectively utilizing their financial, technological and human resources to gain competitive advantage as recommended in RBV theory. Table 4.3 further confirms that the mean score for the 15 questions outlined in the questionnaires ranged between 3.5 and 3.8 showing that most of the respondents believed that investment in technologically-advanced planes, fuel management, HR styles and fleet management systems are attracting adequate returns on investment as far as competitive advantage is concerned.

In table 4.3 results, the implication is that among the independent variables, HR Management styles and fuel management exhibited superior effect in enhancing Competitive Advantage. The standard deviations for all the variables were less than 1 indicating less variations in the responses.

4.4 Testing Assumptions of Regression Analysis

Linearity, Normality, heteroskedasticity and multicollinearity tests were conducted and the results are as displayed in tables below.

Table 4.4: ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Competitive Advantage * HR Management styles	(Combined)	21.184	9	5.798	36.345	.000
	Linearity	2.857	1	3.857	29.480	.000
	Deviation from Linearity	38.326	8	7.291	49.703	.000
Competitive Advantage * Aircraft_Maintenance_and_Acquistion	(Combined)	59.603	12	3.506	21.999	.000
	Linearity	17.283	1	17.283	108.444	.000
	Deviation from Linearity	42.320	12	2.645	16.596	.000
Competitive Advantage * Fuel Management	(Combined)	29.179	8	4.897	20.120	.000
	Linearity	.184	1	.184	.757	.000
	Deviation from Linearity	38.995	7	5.571	22.886	.000
Competitive Advantage * Fleet Management System	(Combined)	67.155	7	9.594	80.559	.000
	Linearity	14.926	1	14.926	125.332	.000
	Deviation from Linearity	52.229	6	8.705	73.096	.000
Competitive Advantage * Dynamic Capabilities	(Combined)	76.958	11	6.996	90.545	.000
	Linearity	7.809	1	7.809	101.069	.000
	Deviation from Linearity	69.148	10	6.915	89.492	.000

4.3.1 Linearity

A straight line can be used to depict the correlation between variables, which is known as linearity. Data analysis is said to need knowledge of the degree of relationships between variables. All multivariate procedures based on co-relational measures of association, including regression, multiple regression, and component analysis, presume linearity, according to Hair et al. (2010). In order to detect any variation that would alter the correlation, it was crucial to look at the relationship between the variables. The findings in Table 4.3 demonstrate that all of the variables were linearly related to one another. The results demonstrated that the linearity assumption was upheld because the p values for linearity were less than 0.05.

As indicated in the table all the p-values are 0.000 hence are < 0.05. Consequently, the variables are not normally distributed hence non-parametric tests were administered (Manoukian, 2022)

4.3.2 Tests for Normality

Multiple regression posits that the distribution of the variables is normal (Darlington, 1968; Osborne & Waters, 2002). Due to the fact that errors are regularly distributed, a plot of the residual values will resemble a normal curve (Keith, 2006). The assumption provides the researcher with information about what values to anticipate and is based on the normal distribution's shape (Keith, 2006). Relationships and significance tests may be distorted by variables with non-normal distributions (Osborne & Waters, 2002). Both Type I and Type II mistakes as well as the overall accuracy of the results might be affected by outliers (Osborne & Waters, 2002). The symmetrical bell-shaped curve that is specified by mean = 0 and variance = 1 is assumed by the normal distribution. Figure 4.5 illustrates the normal distribution of a variable graphically using a histogram. As a general guideline, any skewness numbers that are outside of this range should be scrutinised.

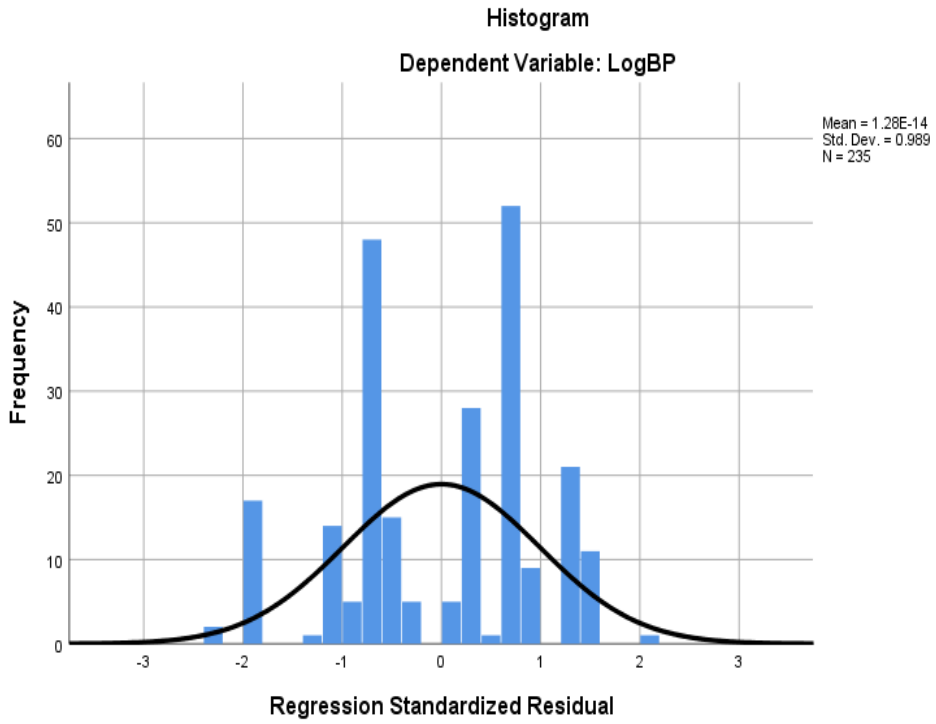

Figure 4.5: Histogram

According to Pallant (2007), negative or positive skewness does not necessarily indicate a problem unless it is outside the normal range, and the values from the data varied from -0.313 to 0.439. The Kurtosis is the distribution's apparent "peak." With ranges between 1.306 and 0.893, positive kurtosis values denote a peak distribution, while negative kurtosis values denote a flat distribution. According to Pallant (2007), negative or positive skewness does not indicate an issue until and unless they are within normal range. Based on our data, the kurtosis ranges were between -0.229 and -1.096, indicating that the variables were within the range.

4.3.3 Multicollinearity

The absence of multicollinearity in the data is a presumption made by multiple linear regression. When the independent variables have an excessive amount of correlation with one another, multicollinearity occurs. Regression results from the SPSS collinearity diagnostics were used to examine tolerance and VIF in order to test for multi-collinearity. According to Garson (2012), the independent variable should be removed from the analysis due to multicollinearity if the tolerance value is less than the cutoff value of.20. The general rule is that multicollinearity is a concern when VIF > 10.0.

Table 4.5 Multicollinearity

Coefficients[a]			
Model		Collinearity Statistics	
		Tolerance	VIF
1	HR Management styles	.769	1.301
	Aircraft_Maintenance_and_Acquistion	.623	1.606
	Fuel Management	.589	1.698
	Fleet Management System	.686	1.458
a. Dependent Variable: Competitive Advantage			

(Source: Researchers Survey Computations, 2022)

According to Table 4.5, the tolerance is acceptable as being less than 10.0 because the VIF spans from 1.301 to 1.698 and the tolerance is between.589 and.769, which is significantly more than.20. Given that tolerance values are greater than.20 and VIF values are less than 10, these results support the assertions made by Garson (2012), Hair, Anderson, Babin, and Black (2010), and Aminu and Shariff (2014) that multi-collinearity is not present in this study. According to the pretest conditions expressed

in table 4.5, there is no multicollinearity in independent variables. That is, the VIF for all the independent variables are below 10 (Kim, 2019)

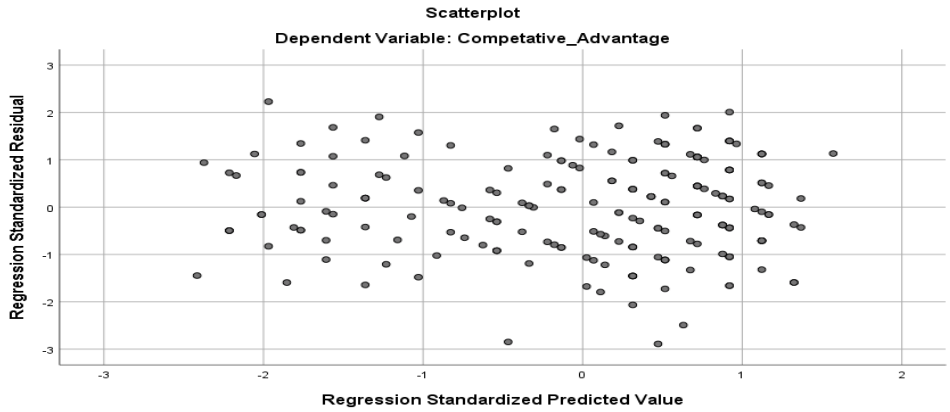

Figure 4.5: Scatterplots

(Researcher, 2022)

From the graph, the plots dot no form a shape of a cone, thus, there is no heteroscedasticity (Manoukian, 2019)

4.4 Reliability of Instruments

The level of consistency that a research instrument produces after numerous trials is known as its reliability. The researcher used Cronbach alpha coefficient which is widely used by researchers for assessing reliability of multiple items. Reliability test was also done using SPSS to check if the instruments met the expected standards. The following guidelines can be used to interpret alpha for questions that have two possible answers, or those that use a Likert scale: 0.9, excellent; 0.9 0.8, good; 0.8 0.7, acceptable; 0.7 0.6, dubious; 0.6 0.5, poor; 0.5 >, unacceptable. If the instruments' reliability coefficients were higher than the advised cutoff point of 0.7, the instruments were deemed to be reliable (Fraenkel & Wallen, 2000). Above 0.70 is the usually accepted Cronbach's alpha value.

Reliability, according to Bryman & Bell (2007), refers to the validity of the study's hypothesis and findings as well as its capacity to produce the same outcomes when duplicated. The results showed that all constructs had Cronbach's Alpha values within the recommended range of between 0.801 and 0.905, proving the validity of the data gathering method. The scales utilised in the study were trustworthy to capture the constructs, according to the results of this reliability test. Table 4.6 displays the reliability test results.

Table 4.6: Reliability Coefficients of Study Constructs

Construct	Cronbach's Alpha	Number of Items	Comment
HR Management styles	.835	6	Good
Aircraft Maintenance and Acquisition	.824	7	Good
Fuel Management	.787	6	Good
Fleet Management System	.847	5	Good
Competitive advantage	.829	9	Good

(Source: Researchers Survey Computations, 2022)

4.5 Correlation Analysis

To investigate any relationships between specific independent variables and the dependent variable, the Pearson correlation coefficient (r) was used. The direction and intensity of correlations between the variables were explicitly examined in this study using Pearson's correlation coefficient (r). Wong and Hiew (2005) cite the correlation coefficient value (r) range from 0.10 to 0.29 as a weak positive correlation, 0.30 to 0.49 as a moderate positive link, and 0.50 to 1.0 as a strong positive correlation. Field (2005), however, asserts that in order to prevent multicollinearity, the correlation coefficient should not exceed 0.80.

Table 4.7: Correlations Analysis

Correlations

		CMA	Acquisition & Mnt	Fuel Mngt	Fleet Mngt	HRM
CMA	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	208				
Acquisition Mnt	Pearson Correlation	.751**	1			
	Sig. (2-tailed)	.000				
	N	208	208			
Fuel Mngt	Pearson Correlation	.728**	.565**	1		
	Sig. (2-tailed)	.000	.000			
	N	208	208	208		
Fleet Mngt	Pearson Correlation	.596**	.420**	.463**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	208	208	208	208	
HRM	Pearson Correlation	.261**	.175*	.297**	.320**	1
	Sig. (2-tailed)	.000	.011	.000	.000	
	N	208	208	208	208	208

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

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

(Source: Researchers Survey Computations, 2022)

In contrast to a correlation coefficient of one, which implies a perfect positive correlation, a correlation value of zero indicates that there is no association at all. In order to prevent multicollinearity, Field (2015) states that the correlation coefficient shouldn't be higher than 0.8. Given that this investigation's greatest correlation coefficient was 0.751, multicollinearity was not a problem.

The results in table 4.7 indicated mixed results, whereby there were strong positive, positive and moderate a weak correlation including significant correlation between the independent variables and the dependent variable (competitive advantage). Particularly, the correlation results showed that Aircraft Maintenance and Acquisition had a strong positive and significant relationship with competitive advantage ($r = .751$, $\rho < 0.01$). Fuel Management had a strong positive and statistically significantly correlation with

competitive advantage (r =.728 ρ<0.01), while fleet management had a strong positive correlation with competitive advantage (r = 0.596, p <0.01). Further, results indicated that HR Management styles had a weak positive correlation with competitive advantage (r = 261, p< 0.01).

4.6 Regression Analysis

For each individual variable, regression analysis was performed to determine the contribution of the various operationalization of the variable to the variation in the connection between the variables.

4.6.1 Model Summary

The model summary Table 4.8 results demonstrate the model's suitability for describing the strength of the link between the concepts of fleet management practices and competitive advantage of domestic airlines.

Table 4.8: Model Summary

Model Summary									
				Std.	Change Statistics				
Model	R	R Square	Adjusted R Square	Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.862[a]	.742	.737	.29795	.742	146.164	4	203	.000
a. Predictors: (Constant), HR management styles, Aircraft Maintenance and Acquisition, Fleet Mngt, Fuel Mngt									

(Source: Researchers Survey Computations, 2022)

The fluctuation in the dependent variable as a result of changes in the independent variable is shown by adjusted R squared, also known as the coefficient of determination. Based on the data in Table 4.8, the adjusted R squared value was 0.737, indicating a variance of 73.7% on the Competitive Advantage of of the domestic airlines in Kenya due to changes in Aircraft Maintenance and Acquisition, HR Management styles, Fleet Management System, Fuel Management and Competitive Advantage at 0.05

confidence interval. According to the results displayed in the table above, there was a strong positive association between the research variables, as indicated by the correlation coefficient R's value of 0.862. This demonstrates the model's strong explanatory ability.

4.6.2 Analysis of Variance (ANOVA)

The null hypothesis, according to which there is no statistically significant relationship between fleet management practises and competitive advantage, was put to the test using the F-test. Table 4.9 shows statistically significant relationships between the studied elements of fleet management and competitive advantage at the airlines. The results of additional ANOVA tests, which are displayed in table 4.9, showed that the F calculated 146.164 was higher than the F critical and that the P value of 0.0001 was less than the threshold of significance of 0.05. Implying that the results were statistically significant and that the relationship's model fitted the data well.

Table 4.9: ANOVA

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	51.903	4	12.976	146.164	.000[b]
	Residual	18.021	203	.089		
	Total	69.924	207			
a. Dependent Variable: Competitive Advantage						
b. Predictors: (Constant), Aircraft Maintenance and Acquisition, HR Management styles, Fleet Management System and Fuel Management						

(Source: Researchers Survey Computations, 2022)

The results indicate the p-value is 0.000 > 0.05 indicating a significant relationship between independent variables (aircraft maintenance and acquisitions, human resource management styles, file management system, fuel management causes) and competitive

advantage. The findings suggest that the overall model might offer a decent fit for the data and was significant (F value = 95.657; p 0.05). Given that the model's significance value (p-value) is less than 0.05, this suggests that the data are suitable for drawing conclusions about the population's parameter.

4.6.3 Regression Coefficients

The regression coefficients (B), the intercept (alpha), and the significance of each coefficient in the model were also subjected to the t-test in order to ascertain the significance of the regression association between operational management methods and airport performance. The coefficient was tested against the null hypothesis that it is zero. The null hypothesis states that there is no correlation between operational management practices and airport performance, where (beta) = 0. The results for the resulting model's beta coefficient are shown in table 4.10, and they show that the constant = 0.221 is substantially different from zero, with a p-value less than 0.05.

Table 4.10: Regression Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.221	.203		1.089	.277		
	Acquisition & Maintenance	.434	.043	.443	10.004	.000	.648	1.544
	Fuel Mngt	.375	.047	.366	7.961	.000	.600	1.668
	Fleet Mngt	.232	.041	.241	5.723	.000	.713	1.402
	HR mngt	.003	.044	.003	.074	.000	.868	1.152

a. Dependent Variable: CMA

(Source: Researchers Survey Computations, 2022)

Following the use of a regression model on variables measured in their original scales, the unstandardized coefficients are generated. Similar to this, when a regression model

is applied to standardised data, standardised coefficients are generated (i.e. rescaled variables that have a mean of 0 and a standard deviation of 1). Because a change in units in the outcome Y is linked with a change in units in the independent variable X, the unstandardized coefficient was employed in this situation to aid in evaluating each individual X's distinctive impact on Y. When using standardized coefficients, the influence of various predictors Xi is assessed on the outcome Y, with a change in X of 1 standard deviation being correlated with a change in Y of standard deviations.

The t-test was used to evaluate the regression coefficients (r), the intercept, and the significance of all coefficients in the model in order to determine the significance of the regression relationship between fleet management methods and competitive advantage of domestic airlines. In order to reject the null hypothesis that the coefficient is zero, this was done.

The Aircraft Maintenance and Acquisition coefficients, B =.434, t =10.004, and p = 0.0001, had a favourable influence on competitive advantage similar to fleet management system, B = 0.232, t = 5.723, and p = 0.0001. The factors B=.375, t = 7.961, and p=.0001 indicate that fuel management has a positive impact on airport performance and has been shown to have a significant impact on competitive advantage. Further, B=.003, t = .074, and p =.0001 values for the Human Resource Management styles demonstrated a favourable and statistically significant influence.

Based on these, the regression model: $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$ therefore becomes;

$$Y = .221 + 0.434\ X_1 + 0.375\ X_2 + 0.232\ X_3 + 0.003\ X_4 + e$$

The results from the equation above suggest that each unit increase in Aircraft Maintenance and Acquisition results in a 0.434 gain in competitive advantage. Every additional unit in the fuel management results in a 0.375 improvement in competitive advantage. Further, every unit increase in the fleet management system results in a 0.232 improvement in competitive advantage, showing a moderately good impact on competitive advantage. Additionally, for every unit increase in the Human resource management, performance increases by 0.003.

4.7 Hypothesis Test

In order to accept or reject as untrue the widely acknowledged claims or connections between the study variables, the study examined the hypotheses. The idea was tested using regression analysis. The study hypothesis is accepted if the p value is 0.05 or greater, which is the minimum need for hypothesis testing. If the p value was less than 0.05, the study hypothesis was supposed to be disregarded. In other words, it was determined that the model was significant, had good predictors of the dependent variable, and that the results were the result of chance if the p-value was less than 0.05.

H_{01} – Aircraft acquisition and maintenance has no significant effect on the competitive advantage of the domestic airlines in Kenya.

The research's first objective was to establish the effect of Aircraft acquisition and maintenance on domestic airline's competitive advantage. In this case, the H_{01} indicated that there is no meaningful connection between reward management system and perceived employee performance. The results indicate that there is significant positive relationship between competitive advantage and aircraft acquisition and maintenance ($p = 0.0001, < 0.05$), therefore, the research null hypothesis is rejected because the p-value is less than 0.05. This result is in line with the findings of Boon et al. (2018) who asserts that acquisition and maintenance of aircraft on a frequent basis can raise the

competitive advantage of the domestic airline. The implication is that, if firms engage aircraft acquisition and maintenance of aircrafts as a fleet management practice they will increase the competitive advantage by reducing the nature of expenses incurred from using out-dated aircrafts.

H_{02}: Fuel management has no significant effect on the competitive advantage of domestic airline companies in Kenya.

The second objective was to determine the influence of fuel management on the competitive advantage of domestic airline companies in Kenya. The research hypothesis has to be accepted by a p value of 0.05 or higher. If the p value was less than 0.05, the study hypothesis was supposed to be rejected. In the case of fuel management system (the p-value = 0.0001< 0.005), thus, the null hypothesis of the study was refuted, and it was discovered that fuel management and airline competitive advantage have a positive strong relationship. This is in line with the conclusions made by Gikonyo (2018) who also found a strong correlation between organizational resources and long-term competitive advantage for a subset of Kenyan aviation companies. This implies that when the other independent variables (Fleet management system, Aircraft acquisition and maintenance and Human resource management) are held constant, competitive advantage of firms will increase.

H_{03}: Fleet management system has no significant effect on the competitive advantage of the domestic airline companies in Kenya.

The study's third objective was to assess the influence of fleet management systems on the competitive advantage of the domestic airline companies in Kenya. The study's null hypothesis postulated that there is no statistically significant effect of fleet management system on competitive advantage of domestic airline firms in Kenya. However, findings in Table reveal that the beta coefficient for fleet management system is $\beta = .232$ and ρ

= .0001<0.05. Therefore, it was concluded that there is a statistically significant effect of fleet management system on business competitive advantage. This implies that fleet management system influences the competitive advantage of the individual domestic aairline firms in Kenya.

H_{04}: Human resource management has no significant effects on the competitive advantage of the domestic airline companies in Kenya

The study's fourth objective was to evaluate the influence of human resource management systems on competitive advantage of the domestic airline companies in Kenya. The study hypothesized that there is no statistically significant effect of human resource management systems on business competitive advantage of airline firms in Kenya. Based on the findings in Table 4.10, the beta coefficient for human resource management is B=.003, t = .074, and p =.0001, therefore, it was concluded that there is a statistically significant effect of human resource management on business competitive advantage Airline firms in Kenya. The implication is that firms should give more attention to hiring, developing and planning activities of human capital resources in order to drive and gain competitive advantage within the aviation industry as indicated by Al-Romeedy (2019).

Table 4.11: Summary of Hypothesis Testing Results

Hypotheses	What is Expected	P-values	Verdict
$H0_1$	Aircraft acquisition and maintenance has no significant effect on the competitive advantage of the domestic airlines in Kenya	0.0001 < 0.05	Reject
$H0_2$	Fuel management has no significant effect the competitive advantage of domestic airline companies in Kenya.	0.0001 < 0.05	Reject
$H0_3$	Fleet management system has no significant effect on the competitive advantage of the domestic airline companies in Kenya.	0.0001< 0.05	Reject
$H0_4$	Human resource management has no significant effects on the competitive advantage of the domestic airline companies in Kenya.	0.0001 < 0.05	Reject

(Researcher, 2022)

The results were in line with a number of studies. For example, Chevrolet (2015) showed that investing in high-tech aircrafts adds value in attracting and retaining new customer bases. Gitahi and Ogollah (2014) also showed that fuel management is a source of cost saving that enable the airlines to be better off than the rivals in expanding their market share do. Similarly, Al Amin and Maina (2020) demonstrated same findings. Further, study by Barney (2007) concluded that competitive advantage results from seamless coordination among all business units or different departments of an organisation. In addition, results on human resource management reflected the conclusion by Oqubay and Tesfachew (2019), which indicated that hiring innovative, skilled and motivated pilots, line maintenance staff and marketers help in transforming aviation firms such as Ethiopia Airlines to household names.

4.8 Discussion

The observed relationship between the independent variables of this study and the airlines competitive advantage are congruent in most instancs with empirical evidence

and theoritical literature. First, as RBV emphasizes, a market player that effectively utilizes the available resources to create service porffolios characterized by four competitive drivers namely unique, rare, non-imitable or unmatched qualities always controls the largest market share (Chandran, 2014). The study also showed that players such as Kenya Airways, Fly540, and others are establishing leading brand equities, attracting and retaining increasing consumers and lowering their operational costs through timely investments in latest aircrafts.

The fleet management component is a critical success factor as evident in the high beta coefficient scores. The majority of the respondents agreed that their companies' acquisition and proper maintenance of the aircrafts have always induced positive perception among the consumer towards their brands. Similar, observations have been made by studies by Buhalis (2014) and Bell (2013) which showed that owning technologically advanced airplane fitted with appropriate ICT gadgets supports business to business relations. The airlines can use intranets to keep the consumers' entertained throughout their journeys. Replacement theory also posits that the old parts of the planes should be replaced in a timely manner in order to lower the cost of maintenance and eliminate security threats (Huang and Rust, 2018). At the studied airlines, spare parts management are scientifically managed hence there are few instances of plane breakdowns that may lead to delays as indicated in the responses in figure 7.

Fuel management's relationship with cost savings can also be explained from competitive advantage theory. As Porter (1985) explains, most firm's competitive edges results from having access to cheaper production inputs. In this case, fuel management is effective tool for achieving economies of scale, and accurate prediction of the future market trends. A significant number of respondents strongly agreed while

the majority of the respondents agreed that their airlines rely on the data analytics to change their prices in response to the changes in the costs of jet fuel. An earlier study by Kilinic (2012) also found that the Turkish airlines with similar analytics enjoyed competitive advantage in attracting new customers. Therefore, the studied domestic airlines are geared to achieve better competitive performance by adopting the best fuel management systems in the industry.

In addition, the leveraging of intangibles such as software applications have been shown to enhance airlines brand names, reputation and service quality (Pearson et al., 2015). In Asia, the airlines that occupied top three positions employed the intangible assets to again competitive advantage of the rivals. While Gikonyo (2018) demonstrated that, the effective deployment of the organizational resources were prerequisites for success in the Kenyan airline industry. This study results also advocate for the use of automated fleet management systems as evident in the responses to the sixth section of the questionnaire. As summarised in the descriptive statistics and figure 7 the majority of the responses acknowledged that the Kenya airlines using fleet management systems are always in a position to satisfy the customers' needs by providing seamless services. The aviation firms hardly subject their clients to costly disruptions in their services such as unnecessary delays.

On the other hand, while this study found that the human resource management styles had the least but significant impact on competitive advantage, other researchers such as (Oqubay and Tesfachew (2019) and Liu et al. (2019) have showed that personnel is a leading determinant of competitive advantage. This implies that the human resource management at the fleet management divisions at the firms needs significant improvement to meet the international standards.

Although it may come as a surprise, this result is consistent with views held by experts in the field with whom we discussed our findings, such as those by De Neufville (2015). It is explained by the degree of adaptability airline executives will have in changing the fleet mix to meet passenger demand. Indeed, the aforementioned level of freedom will be at its highest if the airline doesn't buy any new planes. Airline management, however, emphasised that owning an aircraft boosts the airline's financial value, and this is a factor that cannot be disregarded in fleet planning decisions.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0. Introduction

This last chapter summarizes the main findings of the study, provides recommendations on how the studied airlines can improve their competitive edges and suggest areas for future studies.

5.1 Summary of Findings

The study's results are outlined in this section in accordance with its goals. Finding out how fleet managment practises influenced domestic airline's competitive advantage was the main objective. A number of methods were used to arrive at the conclusions. The study used explanatory research design for survey. Additionally, regression analysis and descriptive statistics were some of the methods used. Descriptive statistics results showed a statistically positive reltionship between fleet managment system and competitive advantage.

5.1.1 The effect of Aircraft acquisition and maintenance on competitive advantage of domestic airlines

This fleet management component scored a $\beta = 0.323$ and p value= 0.000 hence the cores are lower than 0.05 indicating that aircraft acquisition and maintenance has significant effect on the competitive advantage of Kenya Airways, Jambojet, Safarilink, Renegade, Bluesky, EA. Com, Skyward Express, Air-Kenya, Fly540 and Jetways. According to the study, this aspect of fleet management had the most significant impact on the airlines brandy equity, and attraction and maintenance of a growing customer base.

5.1.2 The effect of Fuel Management on competitive advantage of domestic airlines

The approaches employed by the airlines in predictive fluctuations in jet fuel prices and incorporating in decisions relating to operational costs are also resulting into positive return on investment as far as competitive advantage is concerned. According to the study, the β and p values for fuel management were 0.383 and 0.000 respectively that was < p value of 0.05. Therefore, it was concluded that fuel management had significant effects on competitive advantage. The element of fleet management particularly affects overall operational costs hence enables firms to offer better quality services than the rival but at more affordable rates.

5.1.3 The effect of Fleet Management System on competitive advantage of domestic airlines

Achieving seamless coordination of the airlines' fleet are made possible by integrated ERP systems. On the other hand, the study results found that the airlines have not been effectively utilizing the fleet management system to achieve competitive edge. The varied had β of 0.071 and p value of = 0.117 (The scores are > 0.05). Consequently, the fleet management systems did not have significant effects on the measures of competitive advantage such as brand equity, operational costs, market share and consumer preference.

5.1.4 The effect of Human Resource Management Systems on competitive advantage of domestic airlines

The human resource management systems were found not to be positively correlated with the airlines competitive edges (β = 0.023, and p = 0.658 > 0.05). Therefore, the fleet management component needs significant improvements at all the airlines. The respondents are not satisfied with the recruitment processes and knowledge and skills acquisition of the employees involved in scheduling flights and related tasks.

5.2 Conclusion

The study sought to determine the effects of four components of fleet management practices namely aircraft acquisition and maintenance, fuel management, fleet management system, and human resource management styles at ten leading airlines in Kenya. In this case, 208 respondents were recruited from Kenya Airways, Jambojet, Safarilink, Renegade, Bluesky, EA. Com, Skyward Express, Air-Kenya, Fly540 and Jetways who answered the questionnaires attached in appendix 1 below. The results showed a positive significant relationship between the independent variables (fuel management, aircraft acquisition and maintenance fleet management system and human resource management styles) and competitive advantage. The Mean and Standard deviation values of the variables used in this study were as follows: Competitive advantage (Mean = 3.790, SD = 0.581), Aircraft acquisition and maintenance (Mean =3.784, SD = 0.59), Fuel management (Mean = 3.986, SD = 0.568), Fleet management system (Mean = 3.986, SD = 0.568) and Human Resource Management (Mean = 3.925, SD = 0.506). The R=0.826 and coefficient of determination was R^2=0.742. The Aircraft acquisition and maintenance were B =.434, t =10.004, and p = 0.0001, Fuel management B=.375, t = 7.961, and p=.0001, Fleet management system also had a significant impact on competitive advantage β = .232 and ρ = .0001<0.05 as well as Human resource were B=.003, t = .074, and p =.0001.

The research study's first objective was to establish the effect of Aircraft acquisition and maintenance on domestic airline's competitive advantage. The study concluded that aircraft maintenance and acquisition significantly and favorably influenced the competitive advantage of airline businesses operating in Kenya. This finding suggests that airline firms' ability to strengthen their competitive edge might be facilitated by effective aircraft acquisition and maintenance resources. Therefore, in order to adapt to

changing client demands for better performance, airline firms should invest in the purchase and upkeep of aircraft as well as ongoing technical system updates.

The second goal was to ascertain how fuel management affected Kenyan domestic airline firms' ability to compete. According to the study's findings, efficient fuel management significantly and favourably impacted Kenyan airline companies' ability to compete. This shows that effective fuel management strengthens the competitive advantages of airline carriers in Kenya. This implies that it will become increasingly crucial for airline companies with standing to speak out frequently and publicise their opinions by making significant investments in corporate capital as well as allocating enough budget for activities related to competitive advantage of airline companies to support their growth.

The study’s third objective was to assess the influence of fleet management systems on the of competitive advantage of the domestic airline companies in Kenya. The study shows that fleet management is crucial to service delivery and considerably increases competitive advantage in numerous ways. Firms are now able to overcome some of the challenges they once faced during service delivery, such as satisfying customer demand and delivering timely service to clients as promised. This has provided firms an advantage over rivals in their field of business operations. Policymakers should put mechanisms in place to guarantee that all employees abide by the fleet management regulations and that personnel who violate the standards are subjected to appropriate sanctions in order to maintain discipline and effective work flow in the KQ. Simultaneously, policy makers should ensure that over-aged aircrafts are withdrawn from the transport pool and be replaced with new ones to reduce frequent breakdowns, high maintenance cost and high fuel consumption.

The study’s fourth objective was to evaluate the influence of human resource management systems on competitive advantage of the domestic airline companies in Kenya. According to the study's findings, human resources had a small but beneficial impact on the competitive advantage of airline firms operating in Kenya. These findings show that job satisfaction was not influenced by career development. This implies that ineffective human resource management would not increase the capacity to recruit and retain employees who are qualified and motivated for good performance, and thus would not benefit from increased profitability, decreased employee turnover, higher product quality, lower operating costs, and a quicker acceptance and the enhancement of the competitive advantage of airline companies operating in Kenya. Additionally, fleet managers need to be careful to ensure that workers in the aviation sector are aware of their responsibility and accountability for their actions. They should also work to improve the hiring process for new hires and educate and train human resources about the fleet's necessary standards and visual inspections.

The key finding with regard to acquisition and maintenance, including fleet management system, was that the increase in leasing expenses has a negligible effect on the anticipated total expenditures, which is not surprising given that they make up such a small portion of the total costs. However, because investment, leasing, and operational costs are interrelated, changes in one of the stated costs result in a different cost structure and a change in the fleet mix that is employed to meet demand. The airline has the option to allocate a bigger budget toward the purchase of new aircraft when leasing costs are 10% higher than the discounted investment costs, or in the event of the most affordable leasing costs.

Even while the increase in investment costs is relatively modest in comparison to the overall amount invested, it still enables for instance the purchase of two aircrafts such

as A-350-800. Observe that such combination of aircraft has an improved seat capacity. In this case, the airline may operate with a higher seat occupancy rate since it has more freedom to adapt its fleet to the various demand circumstances. In fact, this combination works particularly well in high-demand situations. In the cases where leasing an aircraft is more expensive than the discounted investment costs or even more, the airline will purchase two A330-200 and one A350-900 to offset the increased leasing expenses. The derived fleet mix may need more leased aircraft in the scenario with the highest demand, which is somewhat counter-intuitive — greater leasing prices and more leased aircraft. However, it is flexible enough to suit most demand scenarios. The mix of demand at the various locations, the airline's fleet, and the associated interdependencies between the various cost structure components are to blame for this, though.

Airlines operate with very low profit margins, regardless of their business style. The cost of the cockpit crew is rising faster than inflation while ticket prices are steadily down. The cost of crude oil affects the price of jet fuel. Then, airlines do not have a lot of room for error in terms of attempting to control their maintenance costs and other operating cost components. With age, maintenance costs and operating effectiveness do often alter, with more intense occurrences taking place later in an aircraft's life cycle. Due to advancements in engine technology and aircraft design over time, older aircraft often have lower fuel efficiency than newer generation planes.

5.3 Recommendations

The study makes contributions to both theory and application. This work has created and evaluated a theoretical model that looks at how fleet management affects competitive advantage. The outcome makes it very evident that fleet management strategies have a significant impact on businesses' ability to compete. In actuality, the study provided management and policy makers with recommendations on particular

fleet management techniques or combinations of techniques that create a source of competitive advantage.

5.3.1 Study implications to Policy

As the result show a negative relationship between fleet management system and human resource management styles, the airlines should partner with policy making agencies to conduct joint research on frameworks that would enable them to improve on these areas. Collaborations on dealing with the barriers such as limited knowledge on fleet management technologies would go a long way in solving the challenge. Given that it was shown to be small, the study suggests that human capital, along with other organisational resources, be given special consideration as one of the main factors in the competitive advantage of airline firms operating in Kenya. In order to strengthen knowledge and skills and enable them to discover variables that improve competitive advantage of airline firms operating in Kenya, human resources managers must exert more effort by investing in people via training and development.

5.3.2 Study Implications to Theory

Most existing studies indicate positive correlation between fleet management and competitive advantage. On the other hand, not all firms are effectively utilizing the various aspects of fleet management as was found in this study. Therefore, the scholars should find out the overall effects of the various factors affecting competitive performance of the airlines and strategies for realizing long term success.

5.3.3 Study implications to Management and Practice

According to the study results, the executives at Kenya Airways, Jambojet, Safarilink, Renegade, Bluesky, EA. Com, Skyward Express, Air-Kenya, Fly540 and Jetways should focus their attention particularly to fleet management systems and human

resource management styles. The two elements obtained the lowest scores thereby the airlines should move with speed in addressing the areas where the employees have expressed concern. First, acquiring the latest fleet management systems utilizing disruptive technologies such as Artificial intelligence to collect data from Omni-channel platforms and incorporate in their fleet management decisions would significantly enhance the firms' competitive advantage.

Like the industry leaders such as Singapore Airlines, Emirates, Qantas and Lufthansa engaging in strategic alliances with the digital fleet management software will enable the companies to surpass their consumers' expectations. Systems by firms such as MyFleet Cockpit by SITA provides unique solutions to the dysfunctions that have adversely affected the firms' competitiveness over a long period. The firms will be able to monitor key trends in the industry, identify knowledge gaps and enhance their staff members' capacity to provide exceptional services at all times. The analytics will allow the local Airlines carriers to recruit the top talents in the industry, digital marketers, and fleet managers and further enhance their creativity through regular training thereby leading to persistent growth in competitive advantage.

5.4 Limitations of the Study

The study used self-reported data thereby increasing the chances of bias. For example, the human resource managers may have been reluctant to reveal informatation that may potray weaknesses of their department. However, having a mix of respondents from various segments of the firm significantly reduced such cases. Recruiting managers from all the sections of the airlines yielded comprehensive and accurate view of the experiences at the airlines.

5.5 Suggestion for Future Research

Competition in the airlines is taking new dynamics as the technology-advanced companies are adopting new inventions such as self-flying airplanes and autonomous aircraft. On the other hand, African continent has been lagging behind in embracing such new trends. Therefore, the future research should focus on the impacts of such inventions on the ability of the domestic airlines to increase market share at the global level.

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APPENDICES

Appendix I: Questionnaire

A. DEMOGRAPHY

1. Gender

( ) Male

( ) Female

2. Which company do you work for

( ) Kenya Airways

( ) Jambojet

( ) Fly540

( ) Safarilink

( ) Skyward Express

( ) Air-Kenya

( ) Eastafrican.com

( ) BlueSky aviation

( ) Jetways

( ) Renegade Air.

3. What is your position at the company?

( ) Fleet Manager

( ) Marketing Manager

( ) Human Resource Manager

( ) Senior level manager

( ) Other middle level manager

B. Aircraft acquisition and maintenance

4. Indicate the most appropriate response in the table below based on the scale 1=Strongly Disagree; 2 =Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree.

Measures	**1**	**2**	**3**	**4**	**5**
Acquisition of modern planes at my company always create positive attitude and feelings towards my airlines					
My company hardly experience airplane breakdowns hence has higher brand loyalty than the competitors					
The exceptional maintenance systems in my company enables it to attract and maintain large customer bases					
Spare part management at my company always create positive perceived quality and increase popularity of our brand in the industry					
Our company's brand loyalty has been increasing due to the effectiveness and efficiency of flight acquisition and maintenance activities					

C. Fuel Management

5. Indicate the most appropriate response in the table below based on the scale 1=Strongly Disagree; 2 =Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree.

Measures	**1**	**2**	**3**	**4**	**5**
Fuel Management systems are enabling my company to charge competitive prices					
My company has data analytics for matching the changes in jet fuel prices with changes in macro-environmental factors thereby leading to cost advantage					
The fuel management styles enable my company to achieve its cost savings targets and ability to offer discount and other benefits to the customers					
My company rarely experience fuel shortages and costly disruptions that may lead to refunds and fines					
Fuel Management systems enables my company to differentiate its pricing strategies from those of rivals					

D. Fleet management system

6. Indicate the most appropriate response in the table below based on the scale 1=Strongly Disagree; 2 =Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree.

Measures	**1**	**2**	**3**	**4**	**5**
Fleet Management systems enables my company to meet the consumer satisfaction in terms of provision of seamless experience					
The effective use of fleet management system enable my company to minimize flight delays and disruptions that may force clients to shift to rivals					
My company has an integrated fleet and ERP system hence the departments often coordinate efficiently in responding to clients' needs					
My company leverages fleet management systems to position itself as the best domestic airline in the country					
The use of fleet management software allows my company to eliminate redundancies, miscommunication and inefficiencies that may influence clients to have negative attitudes towards our services					

E. Human Resource Management

7. Indicate the most appropriate response in the table below based on the scale 1=Strongly Disagree; 2 =Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree.

Measures	**1**	**2**	**3**	**4**	**5**
Educating and training crew members enable my company to offer the best services portfolios in the industry					
Crew members hiring process in my company is competitive thereby enabling the firm to launch innovative ways for meeting customers' expectations					
My company boasts of staff members with vast knowledge, experience and skills needed to attract and maintain a growing number of loyal customers					
My company's staff members have access to new information that enables continuous improvements of our products and service					

My company fleet management styles always generate high returns on investment since the staff members have the capacity to study the trends and launch proactive means for filling the gaps in the market					

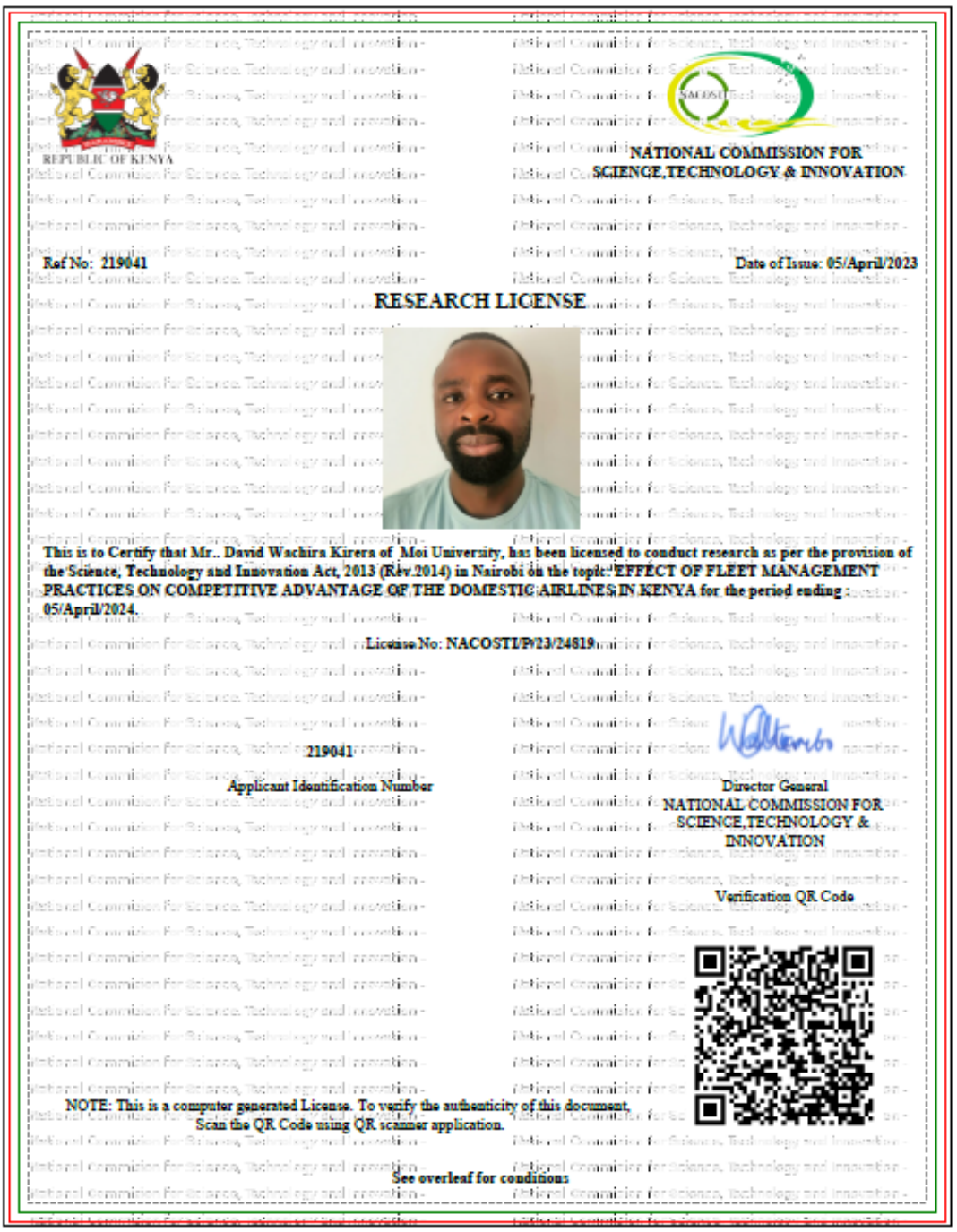
F. <u>Competitive Advantage</u>

8. Indicate the effects of fleet management practices on Domestic Airline's competitiveness during the last 5 years (2015-2020) Ratio 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree.

Effects	**1**	**2**	**3**	**4**	**5**
The growth in my company's brand equity has consistently grown due to continued investment in fleet management					
Fuel Management systems are playing a critical role in setting competitive prices, as well as, attracting and maintaining a growing customer bases of loyal customer bases at my company					
My company has recorded significant growth in market share over the past three years due to the success of its fleet management system					
My company offer exemplary services due to the insights gained from the fleet management system					
Investment in fleet management by my company is resulting into high returns in terms of brand awareness, consumers' confidence in the safety and quality of your services, and demand for the air tickets					

THANK YOU!

Appendix II: NACOSTI Research License



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