INFLUENCE OF OPERATIONAL PLANNING ON FINANCIAL PERFORMANCE OF AIRLINES IN WILSON AIRPORT IN KENYA

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DECLARATION AND APPROVAL

Declaration by the student

This project is my original work and has never been presented for any academic award in any institution.

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Approval

This project is being submitted for examination with my approval as University supervisor.

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Signature 13th June 2025

DEDICATION

I dedicate this work to my beloved parents and the entire family, for their support which has been essential to the completion of this research.

ACKNOWLEDGEMENT

Above all, I want to express my appreciations to the Almighty for blessing me with good health I needed to successfully complete this research project. Second, I wish to extend my gratitude to Dr. Isaac Gachanja, my supervisor, for his efforts, encouragement, patience and counsel during the research work. Thirdly, I want to acknowledge everyone's contribution and assistance for assisting me accomplish this milestone.

ABSTRACT

This study explores the influence of operational planning decisions on the financial performance of airlines operating at Wilson Airport, Kenya. Financial performance in the aviation sector is critical for the sustainability and competitiveness of airlines, yet many struggle with high operational costs and fluctuating demand. This research examined the direct impact of four key operational planning decisions—fleet planning, aircraft route planning, crew pairing planning, and schedule development planning—on airline financial performance. The study was framed within the Resource-Based View (RBV) and Systems Theory, with the RBV emphasizing internal resource management as a source of competitive advantage, while Systems Theory underscores the interdependence of organizational components. The target population consisted of employees from eight airlines at Wilson Airport, totaling 300 employees, with a sample of 171 participants selected using purposive and random sampling methods. Data were collected through structured questionnaires and key informant interviews with eight airline managers. A pilot test was conducted with 17 respondents to ensure the reliability and validity of the research instruments, with the results confirming high reliability (Cronbach's Alpha = 0.85). Quantitative data were analyzed using descriptive and inferential statistics, including correlation and multiple regression analysis. The study found that schedule development ($\beta = 0.491$, $t = 4.255$, $p < 0.05$) and aircraft routing ($\beta = 0.482$, $t = 5.309$, $p < 0.05$) had the strongest positive impact on financial performance, followed by fleeting ($\beta = 0.373$, $t = 9.325$, $p < 0.05$) and crew pairing ($\beta = 0.257$, $t = 3.337$, $p < 0.05$). The model explained 82.6% ($R^2 = 0.826$) of the variation in financial performance. The study concludes that operational planning decisions, particularly schedule development, aircraft routing, fleeting, and crew pairing, significantly influence the financial performance of airlines. The findings highlight that optimizing these planning decisions can lead to improved profitability, cost efficiency, and revenue generation. The study emphasizes that airlines need to adopt data-driven and strategic approaches to enhance operational efficiency and financial sustainability. The study recommends that airline management focus on data-driven fleet planning, route optimization, and intelligent scheduling systems to maximize profitability. Additionally, policymakers should improve the regulatory environment by providing tax incentives, investing in aviation infrastructure, and facilitating streamlined licensing procedures to support airline efficiency. Further research should explore the role of emerging technologies, such as artificial intelligence and big data, in operational planning, and investigate best practices across different regions to enhance the global competitiveness of airlines.

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LIST OF ABBREVIATIONS AND ACRONYMS

AFRAA	African Airlines Association
ASK	Available Seat Kilometer
FAP	Fleet Assignment Problem
FSDM	Fleet System Dynamics Model
GDP	Gross Domestic Product
ICAO	International Civil Aviation Authority
KCAA	Kenya Civil Aviation Authority
KLM	Koninklijke Luchtvaart Maatschappij
KNBS	Kenya National Bureau of Statistics
KQ	Kenya Airways
LCC	Low-Cost Carrier
RPK	Revenue Passenger Kilometer
TOM	Trajectory Optimization Module

CHAPTER ONE

INTRODUCTION

1.1 Introduction

The introductory section presents a comprehensive overview of the research which explains the origin of the problem, problem of the statement that succinctly stated the problem, the aims of the investigation, the questions asked that directed the study, the rationale behind the investigation, the scope of the study which included geographical, content and time scope: and limitations which was anticipated to affect the research.

1.2 Background of The Study

Financial performance is a crucial indicator of an organization's ability to achieve its strategic objectives and sustain long-term growth. It entails evaluating financial health using various measures, including profitability, liquidity, efficiency, and solvency ratios. In the airline industry, financial performance is assessed through metrics such as return on assets (ROA), return on equity (ROE), operating profit margin, revenue passenger kilometers (RPK), available seat kilometers (ASK), and cost per available seat kilometer (CASK). These indicators help airlines determine their profitability, cost efficiency, and revenue generation capabilities (Huang, 2021). Effective financial performance management is essential for airlines to navigate industry challenges, optimize resource allocation, and enhance shareholder value. According to Abdi et al. (2020), financial performance evaluation enables airlines to adapt to market fluctuations, refine business models, and mitigate potential financial risks. Given the capital-intensive nature of the aviation industry, airlines must implement strategic planning initiatives to ensure sustainable financial performance and remain competitive in the global market. Literature on financial sustainability in aviation emphasizes the

importance of strategic decision-making in areas such as cost control, operational efficiency, and revenue diversification to maintain profitability and long-term viability (Zhang & Zhang, 2018).

Airline planning decisions play a fundamental role in shaping financial outcomes by optimizing the allocation of operational resources. These planning decisions include fleeting, aircraft routing, crew pairing, and schedule development, which collectively influence operational efficiency and revenue generation (Williams, 2017). Fleeting involves determining the optimal fleet composition and aircraft assignments to balance capacity with demand while minimizing costs (Renold et al., 2019). Aircraft routing refers to the selection of flight paths and scheduling to maximize fuel efficiency, minimize operational disruptions, and enhance profitability (Wang et al., 2019). Crew pairing entails structuring work schedules for flight crews to reduce costs associated with labor, accommodation, and union fees while ensuring compliance with regulatory requirements (Chang et al., 2020). Schedule development involves optimizing flight schedules to align with passenger demand patterns, reduce turnaround times, and improve aircraft utilization (Osman et al., 2021). Each of these planning decisions directly impacts an airline's cost structure and revenue potential, making them critical determinants of financial performance. Research in aviation management underscores the necessity of integrating strategic planning with financial performance objectives to sustain competitive advantage in the industry (Garefalakis, 2022).

The intersection between financial performance and airline planning decisions highlights the strategic importance of aligning operational efficiency with economic sustainability. Airlines operate in a dynamic environment characterized by fluctuating fuel prices, regulatory requirements, and intense competition from both legacy carriers and low-cost airlines (Chege, 2021). As such, effective airline planning decisions are essential for mitigating operational risks, optimizing financial resources, and enhancing profitability. Studies on airline operational planning suggest that well-

structured fleet management, route optimization, crew efficiency, and scheduling strategies contribute significantly to improved financial outcomes (Nyatsumba & Pooe, 2022). While research on operational planning and financial performance has been extensively conducted in North America, Europe, and Asia, there remains a knowledge gap in the Kenyan aviation industry. Understanding how airline planning decisions influence financial performance in Kenya's aviation sector is critical for informing policy, guiding industry best practices, and fostering sustainable growth in the region.

1.1.1 Global Perspective of Operational Planning

The airline industry plays an essential role in global economic development, fostering trade, tourism, and connectivity between regions. The financial performance of airlines is heavily influenced by various industry-specific factors, including fuel price volatility, regulatory changes, technological advancements, and macroeconomic conditions. Across developed aviation markets in North America, Europe, and Asia, airlines have continuously refined their operational planning strategies to enhance cost efficiency, improve resource utilization, and maximize revenue. In markets such as the United States and Europe, legacy carriers like United Airlines, British Airways, and Lufthansa have embraced fleet modernization, digital transformation, and network optimization to ensure financial stability (Renold et al., 2019). The focus on fleet composition and the integration of newer, fuel-efficient aircraft, such as the Boeing 787, has helped these airlines reduce long-term operating costs, particularly fuel expenditures, which make up a significant portion of their operational budget (Zhou et al., 2020).

At the same time, the rise of low-cost carriers (LCCs) like Ryanair, Southwest Airlines, and AirAsia has disrupted traditional airline business models. These carriers have capitalized on low operating costs, no-frills services, and point-to-point route networks to offer more affordable air travel options.

In response, full-service carriers have had to adopt several strategies, such as incorporating low-cost elements into their operations and introducing ancillary revenue streams like baggage fees and seat selection (Chang et al., 2020). Furthermore, LCCs' approach to fleet standardization, relying on a single aircraft model, has significantly reduced maintenance and training costs. These strategies have not only enabled LCCs to remain competitive but have forced full-service carriers to reevaluate their operational models to maintain profitability.

In the Asia-Pacific region, competition between full-service carriers and LCCs is also growing. Airlines like Japan Airlines and Singapore Airlines have faced increasing pressure from low-cost entrants like Scoot and AirAsia. In response, these airlines have optimized their fleets, improved their route networks, and embraced digital tools for demand forecasting and route planning (Wang et al., 2019). Fleet modernization and the integration of new technologies have allowed full-service carriers to stay competitive by minimizing costs and enhancing efficiency. Similarly, LCCs in Asia have adopted strategies such as using secondary airports and operating point-to-point routes to reduce landing fees and improve operational efficiency (Choi & Heo, 2020). Strategic route planning, which involves adjusting flight frequencies and choosing profitable routes, has become a key component of both full-service and low-cost airlines' operational strategies in this region.

Meanwhile, airlines in emerging markets, particularly in the Middle East and Latin America, are also refining their operational strategies. Middle Eastern carriers like Emirates and Qatar Airways have embraced advanced digital tools, big data analytics, and revenue management systems to enhance their competitiveness (Zhang & Zhang, 2018). These airlines have leveraged their geographical advantage by establishing themselves as hub-and-spoke carriers connecting major global markets. On the other hand, Latin American airlines such as Avianca and LATAM are focusing on cost-reduction strategies and fleet modernization to compete with the growing presence of low-cost

carriers in the region. The integration of data analytics for dynamic pricing and route optimization has become increasingly important as airlines in these regions navigate both local economic challenges and global competition.

Across the globe, airlines have adopted a variety of operational strategies, each tailored to the unique challenges and opportunities of their respective markets. However, common themes emerge across regions: fleet modernization, strategic route planning, cost management, and the adoption of digital technologies are critical for maintaining competitiveness. Airlines that successfully integrate these strategies are more likely to navigate external challenges, improve financial performance, and maintain a sustainable competitive advantage. As the industry continues to evolve, airlines will increasingly rely on advanced technologies such as artificial intelligence, big data analytics, and machine learning to optimize their operations, reduce costs, and enhance customer satisfaction, ensuring long-term profitability in an increasingly competitive environment (Holloway, 2021; Kimes, 2020). The ongoing trend towards digitalization and data-driven decision-making will play an even more significant role in shaping the future of airline operational planning, providing a solid foundation for strategic growth and financial sustainability.

1.1.1 Regional Perspective of Operational Planning

Regionally, Africa's airline industry faces a multitude of challenges that hinder its growth and profitability. High operational costs, insufficient infrastructure, and restrictive regulatory frameworks have contributed to the financial instability of many African carriers. Airlines across the continent often struggle with fleet inefficiencies, poor route planning, and an overreliance on government subsidies, which have undermined their ability to achieve long-term financial sustainability (Bwire, 2018). For instance, frequent delays in fleet modernization and the need to rely on aging aircraft contribute to higher maintenance costs, which further erode profitability. Moreover,

the lack of integrated regional airspace management and inadequate airport infrastructure make it difficult for airlines to maximize operational efficiency, limiting the growth potential of the African aviation sector (Scotti & Volta, 2017).

Despite these challenges, several major African carriers have shown resilience and have adopted strategic operational planning to overcome obstacles and remain competitive in the international arena. Ethiopian Airlines stands as a prime example of success, having navigated through regional challenges by aggressively expanding its fleet, forming strategic partnerships, and optimizing its route network. The airline has focused on serving high-demand international markets and has leveraged its position as a hub in East Africa to build a solid financial foundation. By investing in modern aircraft and forging alliances with global carriers, Ethiopian Airlines has achieved considerable financial success and emerged as a regional leader in African aviation (Farah et al., 2018). Similarly, South African Airways and EgyptAir have improved their operational models by enhancing fleet management strategies, restructuring routes, and focusing on international market access to boost profitability (Garefalakis, 2022).

In West Africa, airlines such as Air Côte d'Ivoire have employed strategic initiatives to enhance operational efficiency and increase their market share. By partnering with regional carriers like Kenya Airways and its strategic partner Precision Air, they have improved their competitiveness and expanded their reach within the West African and East African markets. These partnerships have allowed smaller carriers to benefit from shared resources, marketing synergies, and improved access to international routes, thus improving their financial performance (Morrell, 2021). The liberalization of air transport in Africa has also been a key factor in fostering regional cooperation. The Single African Air Transport Market (SAATM) initiative, spearheaded by the African Union, aims to reduce the regulatory constraints on intra-Africa flights and increase market competition, which

could significantly improve the financial prospects of regional carriers by encouraging more direct routes and reducing operating costs for airlines operating within the continent (Chege, 2021).

However, despite these positive developments, Africa's aviation industry remains hindered by several significant barriers. Infrastructure deficits, particularly in terms of airport facilities and air traffic management systems, continue to constrain the efficiency of African airlines. Additionally, economic volatility, political instability, and fluctuating fuel prices have compounded the challenges facing African carriers. These factors not only affect operational efficiency but also diminish profitability, especially for airlines without the financial buffers or strategic reserves needed to absorb these shocks. Consequently, while regulatory initiatives like SAATM hold promise for the future, it is clear that the full potential of Africa’s airline industry will only be realized when these underlying infrastructural and economic challenges are addressed. In order to fully unlock financial sustainability, African airlines must continue to innovate in fleet management, route optimization, and strategic partnerships while calling on governments to provide a supportive regulatory and economic environment for the aviation sector.

1.1.3 Local Perspective of Operational Planning

Locally, Kenya’s aviation sector plays a vital role in the national economy, supporting trade, tourism, and regional connectivity. The industry has grown steadily, driven by increased passenger demand, expanded infrastructure, and government policies aimed at improving air transport services (Thendu, 2020). Key players in Kenya’s aviation market include Kenya Airways, Jambojet, Safarilink, and Skyward Express, each facing distinct financial and operational challenges. Kenya Airways, the country’s flagship carrier, has struggled with financial instability due to high operational costs, debt accumulation, and increased competition from foreign airlines (Chepkemboi & Paul, 2019). Despite these hurdles, the airline has adopted strategic measures such as cost rationalization, route expansion,

and fleet optimization to enhance its financial performance (Jomo et al., 2017). Additionally, low-cost carriers like Jambojet have leveraged fleet standardization and schedule optimization to improve efficiency and sustain profitability in the competitive domestic and regional market (Osman et al., 2021).

The Kenyan government has also played a crucial role in shaping the financial landscape of the aviation industry through policy interventions and infrastructure investments. The signing of the Yamoussoukro Declaration in 1988 and the subsequent Yamoussoukro Decision of 1999 facilitated the liberalization of air transport services, enabling Kenyan airlines to expand operations across Africa (Bwire, 2018). Furthermore, investments in airport infrastructure, such as the modernization of Jomo Kenyatta International Airport (JKIA) and the expansion of regional airstrips, have improved operational efficiency and enhanced the competitiveness of Kenyan airlines (Chege, 2021). However, challenges such as high taxation, regulatory bureaucracy, and rising fuel costs continue to impact the financial sustainability of local carriers (Khamasi, 2020). As the industry evolves, strategic operational planning will remain essential for Kenyan airlines to optimize financial performance, navigate market complexities, and sustain growth in an increasingly competitive aviation landscape.

The aviation industry in Kenya plays a vital role in facilitating trade, tourism, and economic growth, yet financial sustainability remains a persistent challenge for local airlines. Kenya Airways (KQ), the national carrier, has struggled with mounting debt, high operational costs, and increased competition, despite strategic initiatives such as cost rationalization and partnerships under the SkyTeam Alliance (Chepkemboi & Paul, 2019). Meanwhile, low-cost carriers like Jambojet, Skyward Express, and Safarilink Aviation have gained market share by adopting cost-efficient fleet strategies and targeting niche markets such as tourism and regional travel (Osman et al., 2021).

However, high taxation on aviation fuel, inadequate maintenance facilities, and regulatory inefficiencies continue to strain airline profitability (Chege, 2021). The liberalization of African air transport through the Yamoussoukro Decision aimed to enhance market accessibility for Kenyan airlines, yet bureaucratic challenges and protectionist policies in some African nations have hindered full implementation, limiting regional expansion (Bwire, 2018).

Despite these challenges, strategic planning and operational efficiency present significant opportunities for improving financial performance. Airlines can leverage fleet optimization, route expansion, and digital innovations such as AI-driven revenue management systems to enhance profitability (Osman et al., 2021). Strengthening regional alliances through code-sharing agreements, investing in cargo operations, and improving government policies on taxation and regulatory efficiency are essential for enhancing competitiveness (Garefalakis, 2022). Additionally, ongoing infrastructure improvements, including the modernization of Jomo Kenyatta International Airport (JKIA) and Wilson Airport, aim to boost operational efficiency and passenger experience (Thendu, 2020). As Kenya's air transport demand continues to grow, effective operational planning, government support, and technological advancements will be crucial in ensuring long-term financial sustainability for the country's airlines.

1.3 Statement of The Problem

Financial performance is a critical determinant of the sustainability and competitiveness of airlines, influencing their ability to expand routes, optimize fleet management, and adopt innovative revenue models (Fardnia et al., 2021). In Kenya, however, airline financial performance has been highly inconsistent, with the aviation sector contributing 0.3% to the GDP in 2019, increasing slightly to 0.54% in 2023, yet airlines continue to report mounting losses (KNBS, 2024). For instance, commercial carriers at Wilson Airport recorded average losses of Kshs. 7.12 billion in 2019, rising

to Kshs. 8.1 billion in 2023 (AFRAA, 2018). The financial instability is exacerbated by high operational costs, fluctuating demand, fuel price volatility, and increasing competition from both local and regional carriers. Dožić (2019) asserted that financial performance in the airline industry is heavily dependent on effective decision-making and strategic planning, given the highly dynamic and competitive operating environment. However, many airlines continue to struggle with aligning their operational planning strategies to enhance financial performance.

Prior research has examined various factors influencing airline financial performance, yet gaps remain in understanding the direct impact of operational planning. Babić et al. (2017) and Chang et al. (2020) explored competitive strategies and financial sustainability but focused on external market forces and regulatory challenges, rather than the internal operational planning decisions airlines undertake. Bett and Njuguna (2022) investigated airline performance in Kenya but primarily analyzed competitive advantage factors, leaving a limited examination of how operational planning—specifically fleeting, aircraft routing, crew pairing, and schedule development—affects financial outcomes. Furthermore, studies in regions such as Europe, North America, and Asia have explored operational planning models and financial sustainability, yet findings from these regions may not be directly generalizable to the Kenyan context due to differences in regulatory frameworks, market dynamics, and infrastructure limitations (Renold et al., 2019; Osman et al., 2021).

Airlines' internal operational reports from Wilson Airport echoed by industry observations demonstrates that inefficient planning processes such as misaligned fleet planning, poorly coordinated routes assignments, inefficient crew combinations and suboptimal schedule development have significantly contributed to the continuing financial constraints among domestic airlines in Kenya. For instance, Kenya Airways reported a 93% increase in operating costs in 2022, primarily due to skyrocketing fuel prices and operational inefficiencies (Ndungu, 2023). Additionally, the air

carrier's restructuring efforts, such as reducing its fleet and route network, have been part of the broader measure to address these setbacks (Olingo, 2022). Even though these internal planning variables are crucial, there hasn't been much empirical study done to measure their effects in the Kenyan aviation industry, primarily in Wilson Airport, which emphasizes the necessity for context-specific research.

This study addresses this gap by examining how operational planning decisions influence the financial performance of airlines operating at Wilson Airport in Kenya. The research investigates key planning dimensions—including fleet planning decisions, aircraft route planning, crew pairing planning, and schedule development planning—to establish their direct impact on profitability, cost efficiency, and revenue optimization. By focusing on airlines operating at Wilson Airport, a key hub for domestic and regional aviation, the study seeks to generate insights that can inform strategic decision-making, enhance operational efficiency, and improve financial resilience among Kenyan airlines.

1.4 Purpose of the study

The purpose of this study is to examine the influence of operational planning decisions—specifically fleet planning, aircraft route planning, crew pairing planning, and schedule development planning—on the financial performance of airlines operating at Wilson Airport, Kenya.

1.4.1 Specific Objectives of the Study

i. To determine the influence of schedule development planning on financial performance of airlines in Wilson Airport in Kenya.
ii. To ascertain the influence of crew pairing planning on financial performance of airlines in Wilson Airport in Kenya.

iii. To determine the influence of aircraft route planning on financial performance of airlines in Wilson Airport in Kenya.

iv. To ascertain the influence of Fleet planning on financial performance of airlines in Wilson Airport in Kenya.

1.5 Research questions

The investigation was designed to have the following research questions which were intended to guide the work.

i. What is the influence of schedule development planning on financial performance of airlines in Wilson Airport in Kenya?

ii. What is the influence of crew pairing planning on financial performance of airlines in Wilson Airport in Kenya?

iii. What is the influence of aircraft route planning on financial performance of airlines in Wilson Airport in Kenya?

iv. How is the influence of Fleet planning on financial performance of airlines in Wilson Airport in Kenya?

1.6 Justification of the study

The core bundle determinant of the financial success of an airline largely is dictated by how well airline operations are planned. Effective operational planning contributes to optimal utilization of input resources while maximizing the financial output of an air operator (Bazargan, 2016). The prime contributor to increase in airline's efficiency and improvement of cost-related items that pushes the air carriers in endeavoring to seek economies of scale in order to be at promising financial position

depends on effective planning. Less effective and inefficient operational planning has led to adverse effects in the operations of an airline globally.

The research emphasized how the overall financial performance of airlines with base operations in Wilson Airport is impacted by operational planning. There is need for an airline to have effective operational planning that foster better financial position and overall productivity to the organization.

The research results may be of immense benefit to the airline management to implement strategies that will look at operations' cost reduction. This way, the organization would reduce unnecessary expenditure that influence the overall financial position of an air carrier.

The study also aimed at benefiting the employees of the organization on the understanding of the connection of operational planning and airline's financial performance and therefore works towards better customer service, which potentially fosters repeat visits by these customers and build the organization's public image and reputation.

Scholars and researchers also found useful the investigation as it added to the literature of information on the essential for operational planning importance to airline's financial performance.

1.7 Scope of the study

The investigation focused on selected airlines with base operations in Wilson Airport. The Wilson airport was significantly selected as it supports the future of aviation professional development with 15 approved training school domiciled there together with a significant number of airlines conducting scheduled operations. The content focused on assessing the influence of fleet planning, aircraft route planning, crew pairing planning and schedule development planning on financial performance of airlines. The duration the research was between 2017 and 2023.

1.8 Limitation, Delimitations and Assumptions

1.8.1 Limitation

The research had some limitations: the employees within the airline were not willing to offer accurate responses claiming that their responses may be used to victimize them; however, the researcher guaranteed them of the confidentiality of the information shared. Some respondents found the study a waste of time therefore they were reluctant in giving out the information that was much importance to the research.

Time allocated for the investigation was not adequate to exhaustively evaluate the impact of operational planning on the airline's financial position determination however the researcher put a lot of exertion to realize the objectives of the research within the time allocated.

1.8.2 Delimitations

The study had some delimitation which included: the area of the study was Wilson Airport in Kenya. Other airports in Kenya did not participate in the study. Also, only 8 airlines with base operation in Wilson airport were considered. The study targeted a population of 300 in which the sample size drawn equated to 171. The study also focused on four airline operations planning areas: schedule development decision, crew pairing operation decision, aircraft routing operation decision and fleet operation decision

1.8.3 Assumptions

The research assumed that decisions made on the operation planning area (schedule development planning, crew pairing planning, aircraft route planning, and fleet planning) investigated will be implemented accordingly.

1.9 Description of conceptual terms

Aircraft routing: The process of assigning an arrangement of flying legs to each discrete aircraft.

Airline financial performance: According to Morrell (2021), it's the comprehensive assessment of a firm's general standing in clusters like expenses, equity, liabilities and assets that depicts company's potential efficacy.

Airline: A group providing a consistent communal service of air carriage on one or more paths:

Crew pairing: An arrangement of nonstop flight (flight leg) that starts and domiciled at the originating airport.

Fleeting: A group or assemblage of aircraft.

Operational planning: Operational planning in this study was defined as per the definition given by Alexy et al., (2018) that it is the method of turning your planned process into a comprehensive map that summarizes precisely what accomplishment a crew would take on a weekly, or from time to time**.**

Schedule development: Is the act of evolving a schedule which is a sequence of tasks that need to be proficient in a specific arrangement within an agreed spell of time.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This area presents comprehensive analysis of philosophies guiding the research, the review of earlier literature on effect of operational planning on financial performance, the research gap in the literature, construction of a conceptual framework depicting the dependent and independent variables.

2.2 Theoretical Literature Review

The theoretical base of the study was attached to three theories: The Competition Network Theory, Fleet Assignment Problem Theory and Resource Based Theory.

2.2.1 Resource Based Theory.

This philosophy explains how resources can be utilized to elevate an organization above others. The resourced based theory was brought forward and advocated by Wernefelt in 1984. To demystify why certain given business enterprises may continuously outshine others and become more competitive in the business arena including how firm-based assets present a sustainable competitive advantage, the model is predicated on two basic assumptions (Miller, 2019). First, various enterprises possess distinct bundles of resources. The spectrum of assets and skill sets among an ensemble of businesses that dictates the enterprise's competitive edge, is one of the foundations of resourced based theory (Cote, 2018). The resource heterogeneity theory propounds that in certain given scenarios, an enterprise with exceptional assets may contest better in specialized tasks and assume a competitive

advantage. Secondly, the complexities of resource exchange across businesses result to persistent resource disproportions (the conjecture of resource immobility), (Alvarez and Barney, 2017).

The first of this model's theoretical presumptions is that business traits are constant. If an enterprise endeavors to enhance and maintain its competitive edge in the business space, it must deviate from its normal trajectory. According to the predominant architype for estimating an organization's prospective earnings, according to Barney, (2018), the business internal factors such as its financial assets and energy determine its return on investment. However, according to Bacq and Eddleston (2018), the resourced based theory does not expound on underlying reasons why given business ventures are able to maintain a competitive edge in circumstances involving rapid and unanticipated changes. According to a more comprehensive theory's standpoint, businesses can gain a competitive edge by establishing innovative potential capabilities through training, acquiring skills, and the steady accretion of business assets that are either intangible or tangible, in addition to using essential assets (Barney, 2018). The resource-based rationale propounds that, if a trivial figure of enterprises possesses valuable material assets, that is, assets that are costly and uneasy to imitate, those firms have ability to create a lasting competitive edge (Barney et al., 2021).

The philosophy further details referencing the capability lifecycle concept on the dynamic capabilities of the enterprise (Cruz and Haugan, 2019). The three primary stages of founding, development, and maturity may be used by the dynamic model to determine the firm's capability lifecycle. These are followed by the six further steps of capacity transformation, which are retirement, retrenchment, renewal, replication, redeployment, and recombination (Collins, 2022). Further, this philosophy emphases on the resources the firm possess, and abilities as the collaboration between internal business structure and the external setting, with a view that the resources possessed

by the internal organization as rare, improperly substitutable, improperly imitable and improperly mobile (Barney, 2018).

By examining the primary limited resources, including the advantages of using modern systems within the organization, the theory offers an alternate explanation in regard to the origin of a business's competitive advantage which augments approach as the aligning perspective. Many information systems (IS) researchers have adopted the theory as their foundational philosophy as a result of their study of business performance with regard to IT themes (such as IT-related occupational systems, business processes, knowledge-based management systems, and mobile devices) (Nason and Wiklund, 2018).

The theory further illustrates that organizations or businesses can use their resources effectively and acquire a competitive edge over other business. This school of thought of use of resources have been explained by various scholars such as Barney et al., (2021) to increase the performance of organizations. In this scenario the theory advocates for organization to their resources in manner that gives them more recognition than others. By doing so the business or organization preserve to maintain competitive edge.

The theory advocated for four tenets known as the VRIO framework of the organization resources. VRIO – stands for Value, Rareness, Imitability and Organization. The resources of an organization must demonstrate value, the resources in an organization must reorganize to demonstrate rareness in their function in the organization and thus become imitability (Nason and Wiklund, 2018). The resources of the organization must work effectively together to reinforce the desired behavior such as high performance (Alvarez and Barney, 2017). The research was influence of operational planning on financial performance for airlines with base operations in Wilson Airport, therefore according to

the theory the resources of the airline must focus on a command that is going bring competitive edge in Fleeting, aircraft routing, crew pairing, and schedule development decisions (Cote, 2018). Consequently, if the tenets of theory are observed by the airlines, then performance is achieved. Therefore, this theory was used in the study to gauge whether the airline resources function as per the prescribed tenets of the theory. The study used the VRIO framework on determining Fleet planning, aircraft route planning, crew pairing planning, and schedule development planning decisions. In summary, incorporating the Resource-Based Theory into the research on the influence of operational planning on financial performance provides a comprehensive understanding of how unique resources and capabilities shape operational effectiveness. By focusing on the interplay between resource leveraging through operational planning and financial outcomes, organizations can align their strategies to maximize their competitive advantages and enhance financial performance. This theoretical lens not only elucidates potential pathways to improved financial metrics but also highlights the importance of strategic resource management in operational planning

2.2.2 Fleet Assignment Problem Theory

This theory was developed for aviation industry. Fleet Assignment Problem (FAP) theory propounded by Zonghao et al., in the year 1994. The theory focuses on assigning an aircraft type for every planned flight based on operating expenses, passenger capacity, and projected earnings for each fleet (Jamili, 2017). This is a crucial task for airline scheduling and planning. The outcomes of the model have an impact on airlines' ongoing operations, including issues with flight linkages, aircraft maintenance routes, crew assignments, and flight gate assignments, in addition to their costs and revenues (Özener, 2017).

One of the most significant elements of airline operations is aircraft scheduling. In aviation-developed nations such as Europe and America, much research and implementation in fleet assignment have

been conducted due to the significance and intricacy of aircraft scheduling job in air transportation (Liu et al., 2024) as compared to airlines in China. Airlines are becoming increasingly aware of the significance and urgency of fleet scheduling and planning management necessitated by the increasing number of their aircraft, the openness of the aviation transport industry, and the heightened rivalry in the aviation sector (Shao et al., 2017). Nevertheless, broadly speaking, the theory and research on aircraft scheduling and planning is still in its initial phases (Liu et al., 2018).

This model is used in airline's fleet assignment to allocate the best kind of aircraft to each sector (Khatab et al., 2022). Different aircraft types have varying flying characteristics, such as climbing ability, maximum take-off weight, flying altitude ceiling, and journey range. Therefore, a certain route is not appropriate for all aircraft models. Furthermore, the seating arrangements of various models vary, as do their operational expenses (Özener, 2017). The B737-300 aircraft, for example, has roughly 144 seats and direct operating expenses of between 4,000 and 7,000 U.S dollars per hour (Xu et al., 2024). However, the A340-200 aircraft has a seating capacity of approximately 380 and an hourly direct operating cost of almost U.S $14,000 (Xu et al., 2024). The airworthiness constraints placed on routes based on aircraft models, the cabin distribution of each model, a study of the models' operational costs in the various routes, and predictions of traffic for both passengers and freight on each flight serve as the foundation for the work's growth. The objective is to minimize operating costs to accomplish the flight running duties by optimizing the allocation of models to flight.

The aptitude of the air carrier to develop flight timetables with aircraft at preferred periods in lucrative areas (demarcated by origin-destination pairings) has a significant impact on airline economics in scheduled passenger air transportation (Shao et al., 2017). For the purpose of creating operating schedules, airlines use a multi-step, intricate decision-making process known as airline schedule planning (Liu et al., 2018) to assign aircrafts to the desired route network. The airlines are very

interested in and concerned with creating the best possible schedule for any given time frame. Because the integrated model to improve the entire process is too big and intractable, these tasks were previously split and optimized sequentially. Use of advanced systems in fleet assignment has enabled operations researchers to integrate and globally optimize these sequential jobs (Kenan et al., 2018)

The theory advocates for assigning aircrafts to already known or planned schedules that have to be made. The proponents of the theory continue to observe that the planned schedules can only be fulfilled if the aircrafts are available and have the capacity satisfy the characteristics of that pre-arranged plan in line with maximizing financial objective. According to Kenan et al., (2018) maximization of the financial objective means high profits of the airline and thus high performance. Due to the fact the theory deals with planned schedules, therefore, it is also concerning crew placement in the available slots and maintenance routes. In other words, the theory advocates for the correct aircraft, crew, best crew slot and best maintenance routes (Jamili, 2017).

The determination of these issues to fit well and maximize profits in operational planning is a concern of the theory. Operational planning in the aviation industry is all about schedule development planning, crew pairing planning, aircraft route planning, and fleet planning decisions. Therefore, for instance when it comes to fleet operation decision the theory advocates for the best decision on the fleet (Liu et al., 2018). The decision made must be informed by the cost involved and how much income is to ploughed to the airline.

In summary, the Fleet Assignment Problem Theory offered valuable insights into the influence of operational planning on the financial performance of corporations. By applying FAP methodologies, airlines can achieve optimal resource allocation, reduce operational costs, enhance service delivery, and ultimately drive better financial outcomes. This research underscored the critical role that effective operational planning plays in providing firms with the tools necessary to navigate complex

logistical challenges, ensuring they remain financially robust in an increasingly competitive landscape. By leveraging the principles of FAP, airline enhanced their operational capabilities and therefore their overall financial performance. Thus, this philosophy was used in the research to explain how best decision on Fleet planning, aircraft route planning, crew pairing planning, and schedule development are employed on maximization of profits of the airlines.

2.2.3 The Competition Network Theory

Competition is a significant business aspect in the current world. The Competition Network Theory was propounded by Dovie Lavie in 2021. The rivalry chains that businesses are a part of are referred to as a competition network (de Oliveira, Oliveira and Lohmann, 2021). These correlations can be deduced from perceived competition, market structure, and resource similarities. According to Bombelli Santos and Tavasszy (2020), the competition network needs to encompass all the key market players, in a wider market consideration and not a confined one.

The magnitude of competition that a given venture such as an airline relates directly to relative significance of that market as contrasted to its market's dominance (Wang et all, 2021). Bilotkach and Hüschelrath, (2019) contends that by combining the competitive relationships across market groups, one may determine the total level of competition that an airline confronts. Zhang (2021) highlights the intricacy of the network competition and raises concerns about the drawbacks of examining competition as an industry's cumulative feature without taking into consideration it's innate relational characteristics. For instance, although operating under comparable business conditions, American Airlines had less intense rivalry than United Airlines in the Atlantic region. Even though studies based on industrial organization economics have mentioned how fiercely an industry competes (Song, Choi and Han, 2020).) does not examine the particular pattern of competitive relations that a given firm is positioned in a given market.

Even if it's possible to do industry analysis at the segment level, it becomes nearly impossible when the segments are defined at a finer level, such as product functions, where each segment requires a repeat of the analysis. Such analysis cannot offer a viewpoint on the entire level of competition encountered by a certain firm that competes in numerous categories, even if one is able to complete this assignment (de Oliveira, Oliveira and Lohmann, 2021). Wang et all, (2021) propounds that businesses in the same industry vary in their competitive relationships and network structure, which might account for performance heterogeneity. Regardless of industry boundaries, the theory of competition networks can clarify the ramifications of a firm's pattern of competitive relations.

By using social network analysis to examine the consequences of competitive networks for strategic conduct, market entry and rivalry, new research on these networks has made some progress (de Oliveira, Oliveira and Lohmann, 2021). While network analysis is a technique that can be used to investigate a variety of phenomena, previous studies have taken things a step further by using the ideas and presumptions of social network theories to examine competition networks (Bilotkach and Hüschelrath, 2019). observes that future studies could refute this presumption and create a hypothesis explaining how competition networks evolve and affect performance. Social network models were designed to examine cooperative relationships rather than competitive ones, which are essentially different (Wang et al., 2022).

In contrast to competitive connections, which require no consent from both parties and prevent resource sharing and the disclosure of proprietary knowledge to rivals, cooperative relationships are voluntary and allow partners to share information (Song, Choi and Han, 2020). Consequently, social network approaches that emphasise social impact and information sharing are discouraged as illustrated by Bombelli Santos and Tavasszy (2020). By examining the unique performance

implications of competitive networks for particular firms, studies show a momentous input in the area of strategic management research.

Competition network theory emphasizes the interconnected nature that comprises rival relations as the essential level of inquiry, in contrast to classic theories of competition that focus on the firm or industry. It regards an enterprise (actor) as an independent entity that competes in concurrence with other companies. The competitive relationship between two enterprises is defined as the collection of competitive relationships in a dyad. US Airways and Delta Airlines, for instance, continued to have an adversarial partnership encompassing their competing relationships in the US, Atlantic, and Latin American markets (Bilotkach and Hüschelrath, (2019). Even more precisely, a competitive tie can be described as pertaining to the competing services that the two airlines operate on a certain US route. Moreover, the concept of competition might transcend industry borders by referring to a company's and its rival's shared operations across many industries (İnan et al., 2021). Consequently, a limited group of businesses and their adversarial relationships is referred to as a competition network.

Cooperative and competitive relationships are essentially different. In contrast to a cooperative tie, such a strategic alliance, which requires partner firms' assent before being formally established in an agreement, a competitive tie can be formed unilaterally by one corporation accessing another company's market without that company's permission (Guo et al., 2022). A competitive relationship can be autonomous given that it can be started by one company without having the consent of another, in contrast to an alliance, which is a bilateral arrangement that creates mutual dependency between parties. Additionally, while the opposite may not be true, a company may view another as a potential rival. For example, Pepsi regarded Coca-Cola as its main opponent in the beginning of

the 20th century, but Coca-Cola mostly disregarded Pepsi's competitive moves until the latter had a sizable market share by the 1980s (Song, Choi and Han, 2020).

According to the model, the way a company or organization implements its planning strategy and management strategy brings the company to where it is in terms of competition with other similar companies in the same sector. Zhang, (2021) maintains that an organization or company that implements effectively strategic planning and efficient management becomes competitive and thus gets an upper hand when it comes to financial performance. The nature of strategies according to Guo et al., (2022) propels the primarily competitive dynamics of company's networks other than cooperative relations. In this case according to İnan et al., (2021) a company with better strategies become more competitive than others and hence influence financial performance. In contrast, Wang et al., (2021) opined that the management capability on managing the companies also is integral in the overall functioning of organizations such the airlines. Organizations with sound management are likely to have a competitive network and thus gain heights in financial performance over competitors.

The Competition Network Theory contributed significantly to the understanding of how operational planning influences financial performance. By examining the complex interplay of competitive relationships, operational planning strategies optimized to enhance airline position within the network. The integration of CNT with operational planning theory and practice offered a powerful framework for analyzing and improving the effectiveness of operational planning in achieving better financial outcomes. This interdisciplinary approach highlighted the critical importance of considering the broader competitive environment in which airline operate. The theory was used in the study to inform the investigation on the best strategies and best management practices to be employed when making decision on Fleet planning, aircraft route planning, crew pairing planning, and schedule development decisions.

2.3 Empirical literature review

The researcher reviewed past materials to understand what was known and what was not known about the topic under research. Several studies by other authors were found in the literature and are described below.

2.3.1 Financial Performance

Financial performance presents a noteworthy aspect for a given business undertaking. Profit-making organizations strive for financial performance. When an organization's financial performance is healthy, it means the organization is profitable. In the case of the current research an airline healthy financial performance makes the airline to be able to run its affairs sustainably. Palmer, et al., (2019) explains financial performance as a degree of how healthy an organization can utilize its resources to generate income. This description was supported by Oh et al., (2017) when the author reaffirmed that financial performance is the overall degree of a company' financial status in defined duration. Correspondingly, Renold et al., (2019) engraved that financial performance is how easy a company or organization can pay its liabilities. Simon, (2021) also contributed the definitions and said that financial performance is the power of an organizations asset in making profit. In support of the definition, all the scholars approve that financial performance is the amount of how an enterprise utilizes its resources to create revenue which in turn yields profit (Wang et al., 2019). However, Wang et al., (2019) explained in a different methods be putting forward the enterprise explain financial performance using several factors such as profitability, liquidity and effectiveness of revenues generated by the organization. The authors differ with the prior meaning as they doubt the other meaning where they state that an organization could be profitable and may be in a position not able

to settle its liabilities on time. However, Palmer et al., (2019) did not agree with this school of thought.

Financial performance is important as it describes the level of profit of an organization. In other words, financial performance is imperative because explains the organizations standing of its revenue, expenses, equity, liabilities, assets, and profit level (Suhardjanto & Ajibroto, 2017). Many others such as Suhardjanto & Ajibroto, (2017), Renold et al., (2019) and Palmer, et al., (2019) agree that financial performance is dictated by numerous aspects which comprise tangibility, risk, size, liquidity and leverage of the business. However, other authors such as Simon, (2021) brings another school of measurement of financial performance. This interests on the determination of financial performance displays the importance of the term financial position in organizations.

The researcher in support of other previous authors observed that financial performance may be determined by several ways which includes capital adequacy ratio, liquidity, leverage, solvency etc. However, in this research, the researcher measured financial performance by using profitability of the organizations under study, return on total assets of the airlines, the airlines Net Profit Margin Ratio, Operating Profit Margin, and the airlines' Gross Profit Margin Ratio. The aforementioned dimension was used because it fits the explanation of financial performance due to nature of airline business.

2.3.2 Operational Planning

Operational planning entails arrangement of particular elements to attain certain objectives. In the case for this study, the goal was financial performance. Koksalmis, (2019) observed that this nature of business planning is a major component of airline performance and explained that operational planning is a process of executing the plans that the company wants to attain the set goals. Khamasi,

(2020) also in the same vein of definition explained operational planning as a collection of issues prearranged by a business to make sure vision, mission and objectives of the organization are attained. Every organization has its own ways on management of operations. Some organizations and companies are inclined to more innovation on operation management than others. The organization that has better innovations flourishes better than the other organizations. This brings the adored idea of Total Quality Management (TQM) where organizations embrace to do the best following the knowledge of Total Quality Management (TQM) in their operation managements.

Operation management is thought to be key to an organization. Many of the organizations employ several operation management strategies inquest to improve their financial performance. Since organization such airlines are in a competitive operation within the sector, organizations use various operational practices inquest to outperform the other organizations (Kasomba & Omagwa, (2020). Despite operation management being old term in the literature in place, there has been more interest in its invention and innovation to deal with the organization of the 21st century (Khanmirza et al., (2020). The results from scholars in their various investigations depict mixed information on the ties between operational planning, quality practices and performance of organizations. Therefore, in the literature there are mixed information which necessitate the designation of this research. For instance, Powell (1995) studied the use of operational planning and management as an element of total quality management to help organization achieve competitive advantage. The results showed that operational planning in the context of TQM may be helpful in getting an organization a competitive advantage. However, it depends on the how the particular element of TQM is implemented. These results by Powell (1995) are similar to the argument by (Simon, 2021) which observed that operation management has impact on company's performance. The same practices of operation help financial and marketing performance of the organization hence these operational

planning is essential to an organization. It is in this vein that this study set to investigate operation management effects on Airlines performance in Kenya.

Operational planning has been believed to be a strong issue when it comes to strategic management. Osman, (2021) set out operational planning as a plan that helps set long term and short-term plans, set goals, brings out clear idea among teams, and in summary sets what is to be done at a particular time. These merits are also supported by Nyatsumba & Pooe, (2022). Osman, (2021), in support of Bett & Njuguna, (2022) advocated that operational planning decomposes the long-term strategic objectives of an entity into short-term, which can be arrived easily. The study was set to understand what nature of operational planning is taken into consideration when making decisions on schedule development, crew pairing operation, aircraft routing operation, and fleet operation of airlines with their base principally located at Wilson Airport.

2.3.3. Relationship between Operational Planning and Financial Performance

There is a strong believe among scholars that operational planning conducted strategically yields impreoved financial performance. Khanmirza, et al., (2020) and Kasomba & Omagwa (2020) investigated how such nature of planning impacts on financial performance of organizations and their results showed significant relationship between strategic operational planning and performance. However, Renold, et al., (2019) explained that for operational planning to yield high performance, the strategies of the planning must be outstanding. The argument by this author was that if the operation planning strategies are not outstanding then the company many not reach its financial goal. Abdullahi, et al., (2020) wrote that operational planning is where an organization has a set of goals which clearly demonstrates how the financial goals of the company are going to be achieved

(Ajibroto, 2017). Thus, operational planning process significantly supports organizations reach their financial goal. If financial goal is achieved it means the financial performance is arrived at.

Financial performance is significantly affected by operational planning, a crucial process that synchronizes the operations of a company with its overall strategic objectives. To guarantee efficacy and efficiency, it involves establishing deadlines, assigning resources, specifying precise tasks, and tracking advancement (Renold, et al., 2019). Operational planning acts as a road map for reaching financial prosperity through transforming strategic objectives into attainable actions.

A key component of operational planning is efficient allocation of resources. To attain the highest level of efficiency, businesses need to carefully allocate resources such as finances, technological advances, employees, and materials. Financial results can be negatively impacted by poor leadership or inefficient use of resources, which can result in higher expenses and lost opportunities (Khanmirza, et al., 2019). An efficient supply chain plan, for instance, can increase customer satisfaction and income by reducing logistical costs and improving delivery schedules.

A further essential aspect of operational planning is risk mitigation. Organizations are able to safeguard their financial health by anticipating potential interruptions and developing measures to mitigate them (Oh, 2017). Organizations can react pre-emptively and reduce monetary damages by adequately preparing for events like supply chain interruptions, delays in operations, and slumps in the economy.

The capacity of a company to establish a strategy and carry out its business activities is closely related to its financial performance. Khamasi, (2020) observed that effective management of funds, cost containment, and achievement of revenue goals are all guaranteed by sound operational planning. For example, a retail business can increase profitability by avoiding stockouts and lowering carrying costs by matching its inventory levels with demand projections.

Financial projections and choices are also aided by operational planning. Extensive plans offer accurate data for cash flow, expenditure, and revenues projections. In addition to aiding with daily financial management, this data draws in stakeholders by showcasing a distinct, doable growth path.

Additionally, operational planning minimizes waste and finds ways to optimize processes, which lowers costs. For example, lean approaches to leadership can greatly increase revenue margins by streamlining processes and getting rid of redundancies.

Operational planning plays a vital to boosting financial results (Simon, 2021). It guarantees the efficient use of resources, the reduction of risks, and the accomplishment of strategic goals. Businesses that make careful planning investments are more likely to attain financial stability, adjust to shifting market conditions, and maintain long-term growth. Businesses can build a strong foundation for financial success by giving operational planning top priority.

To most companies and business enterprises, performance of an organization means financial goal. Consequently, authors such as Suhardjanto & Ajibroto, 2017) explains performance as a good measure of the company if has achieved its financial goal, while operational planning is a process setting the organization actors and assets into achieving the goals. According to Oh, et al., (2017) operational planning is focused on structuring the whole organization to reach the set goals and even how the set goals can be achieved better. All the motives of operational planning are tailored to accomplishing objectives where financial objective is primary goal. Notwithstanding the aforementioned insights, there is still a misunderstanding about the influence of operational planning practices on financial performance as demonstrated by (Simon, (2021) when explained that the level of operational planning is not known which has impacts on financial performance. Several descriptions confirm these connotations. First, financial performance is not easy to measure with particular aspect such as operational planning (Oh, 2017). Financial planning is normally affected by

many aspects and in simultaneous manner thus it is difficult to state the degree of operational planning constituting to financial performance. Secondly, certain operational planning cultures may demonstrate promising results in certain situations and in others, the results become variable (Alexy, 2018). Consequently, this study aimed at assisting generating the knowledge about the impact of operational planning on financial performance of air carriers.

2.4 Theoretical Framework

The theoretical framework for this study draws upon several key theories that explain the relationship between operational planning decisions and financial performance in the airline industry. One of the primary theories underpinning this research is the Resource-Based View (RBV). The RBV posits that firms can gain a competitive advantage and achieve superior performance by efficiently utilizing their internal resources, which include both tangible and intangible assets. For airlines, these resources can range from fleet composition, human capital, and technological capabilities to route networks and customer relationships (Barney, 1991). Effective operational planning, such as fleet management, route optimization, and schedule development, enables airlines to leverage these resources more efficiently, thus improving their financial performance. According to Barney (1991), the key to long-term profitability lies in a firm's ability to maintain a resource base that is valuable, rare, inimitable, and non-substitutable, all of which are crucial in the highly competitive aviation industry. Therefore, the study emphasizes how airlines that strategically manage their resources, particularly through operational planning decisions, are better positioned to achieve and sustain financial success.

Another relevant theory is Porter's Five Forces Framework, which helps to understand the external competitive pressures faced by airlines. This framework identifies five key factors that determine the intensity of competition and, subsequently, the profitability of firms in an industry: the threat of new entrants, the bargaining power of suppliers, the bargaining power of customers, the threat of substitute

products or services, and the degree of industry rivalry (Porter, 1985). In the context of the airline industry, operational planning decisions such as fleet management, route network design, and scheduling are critical in responding to these external forces. For example, by optimizing aircraft routing and schedules, airlines can reduce operational costs, thereby improving their bargaining power with customers and suppliers. Additionally, well-planned routes and fleet decisions can help airlines mitigate the threat of substitutes, such as high-speed trains or other modes of transport, particularly in regional markets (Porter, 1985). The study explores how airlines with sound operational planning are better equipped to navigate the competitive pressures in the aviation sector and, in turn, enhance their financial performance.

Furthermore, the Systems Theory provides another lens through which the relationship between operational planning and financial performance can be understood. This theory views organizations as complex, interconnected systems where changes in one part of the system can have ripple effects throughout the organization (Von Bertalanffy, 1968). In the airline industry, operational decisions such as crew pairing planning, aircraft route planning, and schedule development planning are interdependent and require coordinated efforts to optimize financial performance. For example, a change in aircraft routing can impact flight scheduling, crew pairing, and ultimately revenue generation. By applying systems theory, this study underscores the importance of aligning all components of airline operations to ensure that each decision complements others, leading to better overall performance. The interconnectivity of operational planning decisions reflects the complexity of airline operations, where optimizing one area often leads to improvements in others, contributing to the airline's bottom line (Von Bertalanffy, 1968).

Lastly, Agency Theory is relevant to understanding the dynamics between airline managers (agents) and their shareholders or stakeholders (principals). According to Jensen and Meckling (1976), agency

theory examines the conflicts of interest that arise between agents and principals, particularly when the agents are responsible for making decisions that affect the financial performance of the firm. In the airline industry, the management of operational planning decisions, such as fleet acquisition or route allocation, often involves balancing short-term financial goals with long-term sustainability, which may not always align with the interests of shareholders. This study applies agency theory to explore how the alignment of managerial decisions with shareholder interests, through proper operational planning, can lead to improved financial outcomes. The theory suggests that clear mechanisms, and transparent decision-making processes

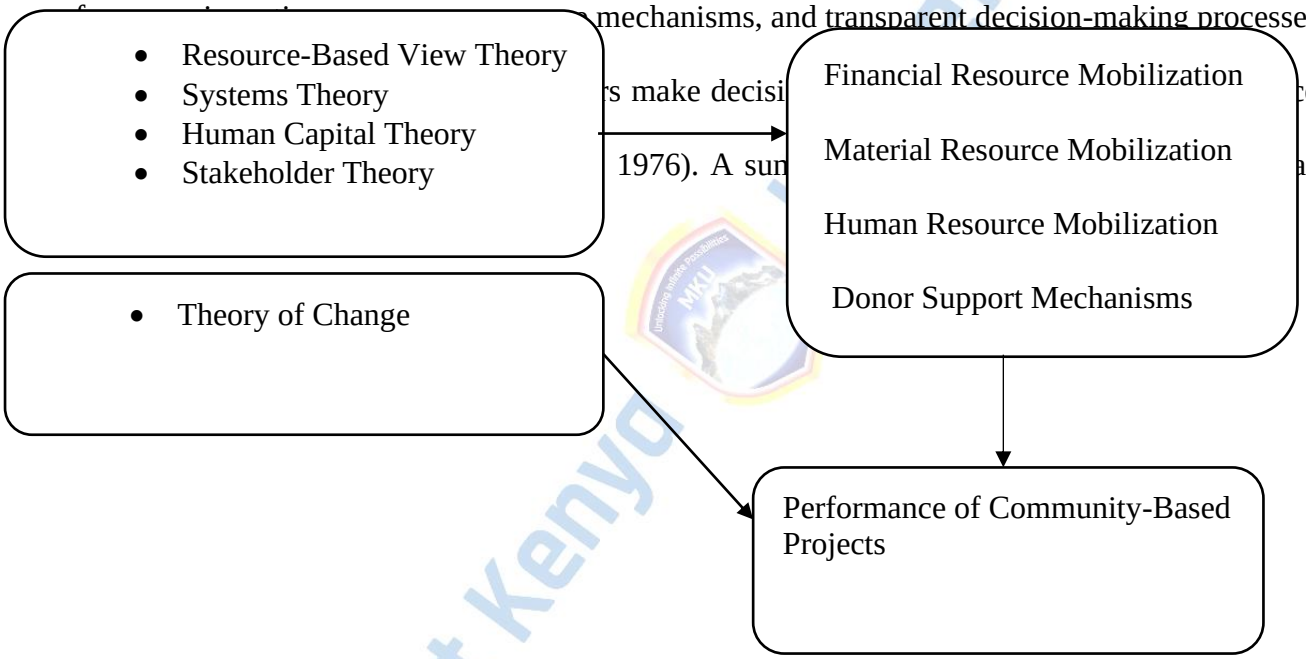

Figure 2.1: Theoretical Framework

By integrating these theories, this research provides a comprehensive understanding of how various operational planning decisions—fleet management, aircraft routing, crew pairing, and schedule development—can influence the financial performance of airlines. Each of these theories contributes to a deeper understanding of the mechanisms through which operational planning can enhance efficiency, reduce costs, and ultimately improve the financial sustainability of airlines in a competitive global market.

2.5 Conceptual framework.

A conceptual framework displays relationship of independent variables which are depicted by four constructs (schedule development planning, crew pairing planning, aircraft route planning, and fleet planning) and the dependent variable. The dependent variable is the financial performance of airlines. Figure 2.1 below represents the conceptual framework. The expectation is that there exists an association amongst the variables which are independent and dependent variables.

Independent variables

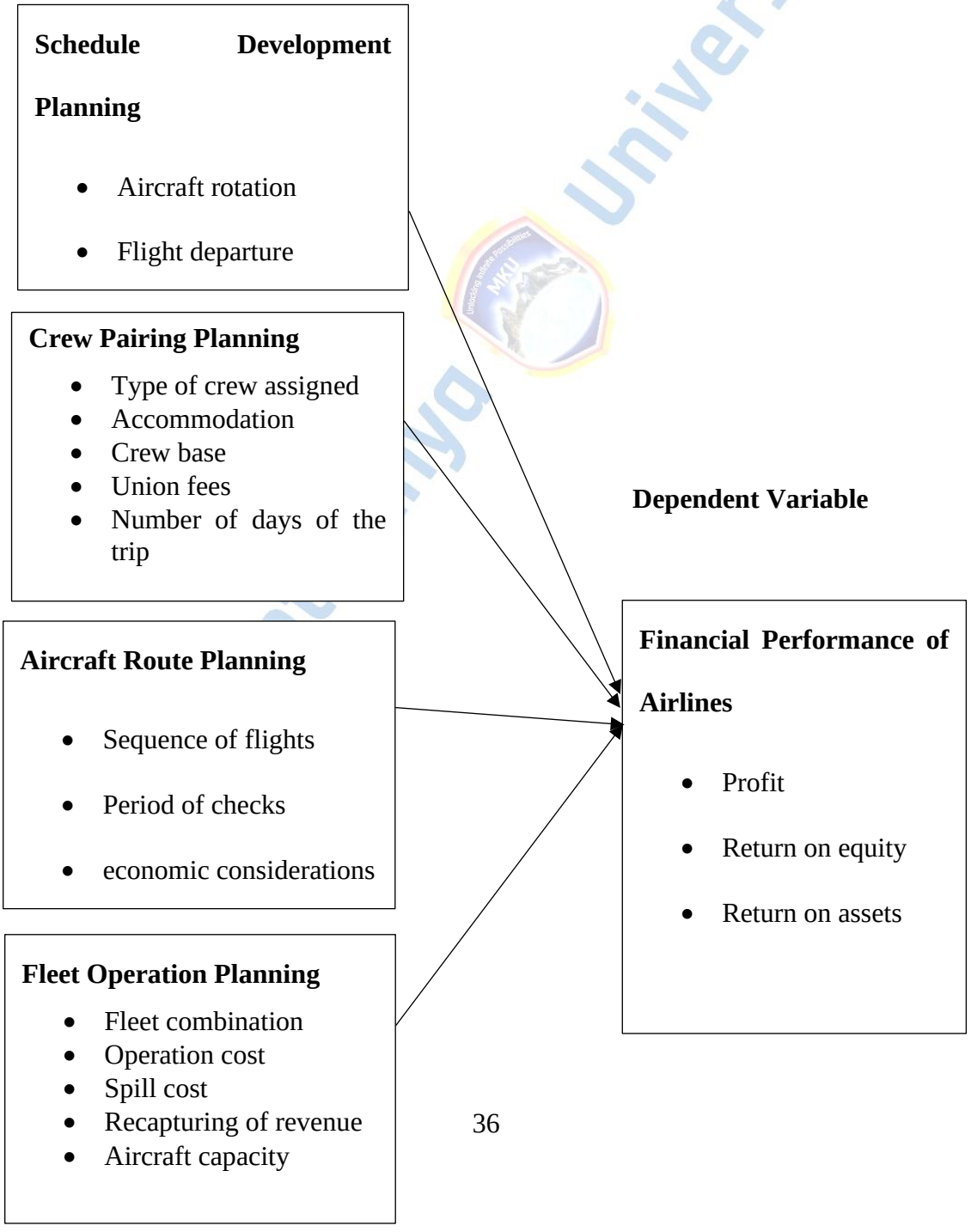

Figure 2.2: Conceptual Framework

Source: Researcher (2024)

2.6 Recap of literature review.

In regard to literal materials reviewed, the impacts of operational planning on financial performance of air carriers having their base located in Wilson airport in Kenya displayed some discrepancies on the understanding of operational planning. Several studies have been conducted to explain operational planning in airlines such as Khanmirza, et al., (2020), Kasomba & Omagwa (2020). These studies investigated influence of schedule development but not in airlines. Other studies are such as those of Wu et al. (2022) and Wensveen (2018) that investigated other variables such as strategic planning and management capacities. On the other hand, these investigations have been conducted in other countries whose economy differs with that of Kenya and focused on different variables creating a gap in literature for the study to become worthy to be conducted using the schedule development decision, crew pairing operation decision, aircraft routing operation decision, and fleet operation decision as the independent variables against financial performance of airlines particularly those with base operations in Wilson Airport.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

A thorough rundown of the approaches and research framework that used in this paper are presented in this section. It deliberates the research strategy, population that was examined by the research, sample selection methodology, the instruments and approaches used in gathering the data, and methods employed for interpreting the data and disseminating the findings. This area contains a thorough outline of these components, laying the groundwork for an in-depth investigation into the current research question.

3.2 Research Philosophy

A study philosophy is an outline that guides how the study will be conducted. According to Bauer, (2017) a study philosophy entails a trust regarding a method in which information about a given issue is to be collected, analyzed and utilized. The study used Pragmatism that involved selecting the best approach for the research problem, regardless of the logical or methodological assumptions (Pham, 2018). According to Park et al., (2020), pragmatism is grounded on the proposition that researchers should evaluate ideas and beliefs in terms of their practical functioning outcomes and allows use of mixed method approach. These arguments led the researcher to use pragmatism viewpoint.

3.3 Research Design

A style entailing directing examination of an investigation aimed at seeking answers to research questions, or hypotheses refers to a research design. It's considered a consistent model of evidence permitting inferences on the association of the variables being studied. The study adapted descriptive study design. Rahi (2017) states out that descriptive research purposes to precisely and methodically

explain a set population of objects, condition or phenomenal issue as it is at the time. Naderifar et al., (2017) argues that descriptive research responses to the question such as what question, where question, when question and how question about the population more clearly than other design. A descriptive research design does not discriminate several research methods to examine one or several variables and for the same reason the investigator decided to utilize it so as not to veer off on focus on the topic in consideration and bring clear understanding. Beins (2017) regards research approach as tools that the researcher utilizes to conduct the study. These approaches can either be quantitative, qualitative or mixed. The study adopted Mixed method approach. A quantitative approach was employed carefully to appraise the influence of the indicators of operation planning on the performance of airlines. Qualitative approach was employed to capture the feeling of the respondents on the topic under investigation. Where influence of a variable is sought, quantitative approach is appropriate to give results.

3.4 Location of The Study

The research was done on selected airlines with base operations in Wilson Airport. The airlines were Freedom Airline Express, Skyward Express, Renegade Air, Phoenix Aviation, Safarilink Aviation, ALS, Airkenya Express and 748 Air Services (Airline Registry Wilson Airport 2023). The area was selected for the study because there are Airline conducting scheduled operations.

3.5 Target Population

The study population comprised employees from eight (8) airlines operating scheduled services at Wilson Airport, as listed in the Kenya Civil Aviation Authority (KCAA) registry. In research, a population refers to the total set of individuals, organizations, or entities under investigation (Gorichanaz et al., 2018). The unit of analysis for this study was the airlines operating scheduled services at Wilson Airport, while the unit of observation was the employees within these airlines,

particularly heads of airlines and operational managers, as they play a crucial role in operational planning and financial decision-making. The target population consisted of 300 employees, distributed across the selected airlines, providing a suitable sample for assessing the influence of operational planning on financial performance.

Table 3.1: Target Population

Airline	Number of Employees
Freedom Airline Express	30
Skyward Express	30
Renegade Air	45
Phoenix Aviation	40
Safarilink Aviation	45
ALS	40
Airkenya Express	32
748 Air Services	38
Total	**300**

3.6 Sample Size and Sampling technique.

For the purpose of this investigation, both purposive and probability sampling methods, specifically random sampling for selecting the heads of airline and random sampling method for choosing the operational managers were employed. Purposive sampling method was used get respondents thoughts by the researcher to have rich information of the company, in this circumstance the heads of the airlines. The participants believed to have rich information were the heads of the airlines. Random sampling was essentially employed in order to offer a chance to every person in the population to participate. The sample size was computed using Yamane formula (1967) because of its easiness and efficiency in calculating sample size, which can be generalized to the whole population. The formula was supported by Chaokromthong and Sintao (2021) on its efficiency in calculating sample size. Therefore, sample size was calculated as follows.

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

Where the symbol:

N= shows the population of the study (300)

e = 0.05 displays the marginal error

n = stands for what is the sample being sought.

$$n = \frac{300}{1+300\ (0.05^2)}$$

= 171.4≈ 171

Therefore, the sample size was 171.

Table 3.2 below outlines a comprehensive breakdown the size of the sample.

Table 3.2 Target Population

Airline	**Number of Employees**	**Sample Size sampled proportionately**	**Percentage (%) (Proportionate Representation)**
Freedom Airline Express	30	14	8.2
Skyward Express	30	14	8.2
Renegade Air	45	31	18.1
Phoenix Aviation	40	22	12.9
Safarilink Aviation	45	31	18.1
ALS	40	22	12.9
Airkenya Express	32	15	8.8
748 Air Services	38	22	12.8
Total	**300**	**171**	**100**

Source: Researcher (2024)

3.7 Data collection instruments

This study utilized structured interviews and self-administered questionnaires as primary data collection instruments. The structured interview guide was designed to obtain in-depth insights from key informants, specifically the heads of the selected airlines, ensuring that the perspectives of decision-makers were captured. A total of eight (8) respondents participated in the interviews, selected purposively to provide expert opinions on operational planning and financial performance. Mugenda and Mugenda (2003) advocate for data triangulation in research, and the inclusion of interviews enhanced the validity of the findings by complementing questionnaire data with qualitative insights. Furthermore, Saunders et al. (2007) suggest that at least five interview respondents are sufficient when combined with other data collection methods, supporting the adequacy of the selected interview sample.

The study also employed structured questionnaires with close-ended questions, distributed to operational managers and other key personnel involved in airline planning and financial performance. The questionnaires were hand-delivered to the study participants to ensure direct engagement and enhance response rates. The selection of structured questionnaires was guided by their efficiency in collecting large amounts of standardized data, cost-effectiveness, and convenience for respondents. The use of Likert-scale questions allowed for the quantification of perceptions regarding the impact of fleeting, aircraft routing, crew pairing, and schedule development on financial performance.

The combination of structured interviews and questionnaires ensured a comprehensive understanding of the study variables by integrating both quantitative and qualitative data, providing a robust foundation for analysis and interpretation.

3.8 Pilot Test

A pilot test was conducted to assess the validity and reliability of the research instruments before full-scale data collection. This process ensured that the questionnaire and interview guide were clear, comprehensive, and capable of accurately capturing the study variables.

3.8.1 Validity

Validity refers to the extent to which a research instrument measures what it is intended to measure (Kombo & Tromp, 2006). To ensure the accuracy of the questionnaire, content validity was used. Content validity evaluates whether the instrument adequately covers all aspects of the study variables. Experts in aviation management and research methodology reviewed the questionnaire to verify its clarity, relevance, and alignment with the study objectives.

A pilot test was conducted with 17 respondents, who were not part of the main study, to assess the appropriateness of the questionnaire. Based on their feedback, minor refinements were made to improve clarity and ensure that the questions effectively captured the intended information. The questionnaire was considered valid if the Content Validity Index (CVI) score was above 0.7, which is the acceptable threshold for validity in social science research (Polit et al., 2006).

3.8.2 Reliability

Reliability assesses the consistency of the research instrument in producing stable and dependable results over repeated trials (Kombo & Tromp, 2006). The internal consistency of the questionnaire was evaluated using Cronbach's Alpha coefficient, which measures how well the items in the instrument are related.

The pilot test data were analyzed using Statistical Package for Social Sciences (SPSS) to compute the Cronbach's Alpha coefficient. A threshold of 0.7 was used to determine whether the instrument was

reliable, as recommended by Pallant (2016). If the reliability score was below this threshold, adjustments were made to refine the questionnaire for clarity and coherence.

The results of the validity and reliability tests confirmed that the research instrument was both accurate and dependable, ensuring the credibility of the study findings.

Table 3.3: Interpretation of the Cronbach Alpha

Cronbach's Alpha Coefficient	Interpretation (Reliability)
$\geq 0,9$	Very high
$0,7 \leq \alpha < 0,9$	High
$0,6 \leq \alpha < 0,7$	Acceptable
$0,5 \leq \alpha < 0,6$	Weak
0.0-05	None

Source: Adopted from Sürücü & Maslakci, (2020).

3.9 Data analysis

Data analysis involves systematically examining collected data to extract meaningful insights. According to Chambers et al. (2018), data analysis is the process of organizing, interpreting, and drawing conclusions from collected data. In this study, both qualitative and quantitative techniques were employed for data analysis.

3.9.1 Quantitative Data Analysis

Quantitative data collected from the questionnaires were analyzed using descriptive and inferential statistical techniques with the aid of Statistical Package for Social Sciences (SPSS).

- Descriptive analysis was conducted to summarize and present data using means, standard deviations, percentages, and frequency distributions. This provided insights into the general trends and characteristics of the study variables.
- Inferential analysis was performed to establish relationships between the independent variables (fleeting, aircraft routing, crew pairing, and schedule development) and the dependent variable (financial performance of airlines). The study employed correlation analysis to determine the strength and direction of relationships among variables, and multiple regression analysis to assess the effect of operational planning decisions on financial performance.

$$Y=\beta_0+\beta_1 X_1+\beta_2 X_2+\beta_3 X_3+\beta_4 X_4+\varepsilon \qquad \text{……………………………………………} (1)$$

Where:

- Y= Financial Performance of Airlines
- β_0= Constant
- $\beta_1,\beta_2,\beta_3,\beta_4$ = Regression Coefficients
- X_1 = Fleeting
- X_2 = Aircraft Routing
- X_3 = Crew Pairing
- X_4 = Schedule Development
- ε = Error term

3.9.2 Qualitative Data Analysis

Qualitative data from interview responses were analyzed using thematic analysis to identify patterns and key themes related to operational planning and financial performance. The process involved familiarization with data, transcription of interviews, systematic coding, and identifying recurring themes, followed by theme development and review to ensure coherence. This method triangulated

qualitative insights with quantitative findings, enhancing the study's depth and reliability. Additionally, data visualization tools such as tables, charts, and graphs were used to present the findings clearly and effectively.

3.10 Ethical Consideration

This study adhered to integrity of doing research. Before commencing the research, the researcher got permission letters from NACOSTI and Mount Kenya University. Written informed agreement was obtained from the participants. The investigation's objectives and the expected length of the participant's involvement were outlined in the informed consent. An explanation of the actions to be surveyed, and an explanation of any reasonably predictable dangers or worries to the subject was similarly be included. In addition, it had an explanation of advantages to the subject or to others which may reasonably be anticipated from the study. During the data gathering process, the investigator used codes on the report as compared to the respondents' recognizable names or job titles in order to uphold privacy.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

In this chapter, the findings acquired from data gathered by employing questionnaires and interviews are outlined. The chapter is organized into four parts. The response rate results are discussed in the first section, demographics are described in the second, and the outcomes of the qualitative and quantitative analyses are outlines in the third and fourth sections, respectively.

4.3 Response rate

The investigator compiled the rate of response. In this case the questionnaires that were returned back. The responses were as demonstrated in table 4.1 shown below.

Table 4.1: Response rate

Questionnaire	**Frequency**	**Percentage**
Returned Questionnaires	166	97.1
Un returned Questionnaires	5	2.9
Interview	Frequency	Percentage
Respondents interviewed	8	100%

Source: Researcher (2024)

To ensure legitimacy and prevent misinterpretation of information, a response rate should be displayed. Only 166 of the 171 self-administered questionnaires that were distributed to participants in this investigation were returned and turned in to the researcher, representing 97.1% of the total. Also, the study conducted interviews to the 8 selected respondents, and all were available meaning 100% of respondents appeared for the interview. Naderifar, et al., (2017) opined a response rate of above 70% is reasonable in ensuring representation.

4.3 Demographic Characteristics

This subsection summarizes findings of characteristic features of participants. The demographic characteristic attributes included educational level, age, sex, marital status and years involved with the airline. Demographic characteristics were said to important in research if it is involving respondents by Panneerselvam. (2007).

4.3.1 Age of The Respondent

Table 4.2 below displays the results from analysis of the respondent's age.

Table 4.2: Age Distribution

Age in Years	Number	Percentage
18-30 years	10	6.0
31-35 years	37	22.3
36-40 years	55	33.1
41-45 years	38	22.9
Over 46 years	26	15.7
Total	**166**	**100**

Source: Researcher (2024)

The information on Table 4.2 depicts that most of the respondents, 55 representing 33.1% were of the age bracket 36-40 years, 41-45 years were 38 representing 22.9%, 31-35 years were 37 representing 22.3, over 46 years were 26 representing 15.7 while 18-30 years were 10 representing 6.0%. The ages of respondents were compiled to investigate whether different ages were presented in the study as advocated by Pham, (2018). The results concluded that the respondents were of different ages and thus age biasness did not influence the findings of the investigation.

4.3.2 Gender of the Respondent.

The respondents' gender was a factor of concern that the researcher wanted to investigate. The outcomes were displayed in Table 4.3 illustrated below.

Table 4.3: Gender of respondents

Sex	Frequency	Percentage
Male	100	60%
Female	66	40%

Source: Researcher (2024)

Table 4.3, above presents gender distribution of the participants in regard to the returned questionnaires, majority of them were male of 100 (60%) compared to the number of females who were 66 (40%). The level males were high because the perception females are generally slow in taking up technical subjects such as those involved in the aviation industry and thus the low number of females (Park & O'Kelly, (2018). This implies that more data was obtained from males compared to females. However, both genders participated in the study. Kothari (2006) outlines that to avoid gender bias both genders must participate in research.

4.3.3 Education Level

The educational background was analyzed, and the conclusions are displayed in Table 4.4 below.

Table 4.4: Education level

Education level	Occurrence	Rate of Response (%)
Certificate	9	5%
Diploma	21	13%
Degree	108	65%
Postgraduate	28	17%

Source: Researcher (2024)

The level of educational qualification was an indispensable aspect to be taken into consideration. By conducting study, the investigator evaluated and examined the various educational levels of the participants/respondents. This was important in ascertaining and seeking to understand their prowess and abilities to give correct responses to the questions. Table 4.4 illustrates that 108 respondents representing 65% had degree level of education. The results imply that the participants had enough education to understand the questionnaire and give relevant answers. Polit & Beck, (2006) argued that level of education is very important if the questionnaire has technical question such as those in the current questionnaire which involves fleeting, aircraft scheduling, crew paring and aircraft routing.

4.3.4 Years Involved with The Airline

Experience or years involved with airlines was investigated and the outcomes were presented in Table 4.5 below.

Table 4.5: Years involved with Airline

Years involved with Airline	Frequency	Percentage
0-3 years	24	14.5%
4-6 years	60	36.2%
7-10 years	42	25.4%
Over 10 years	40	23.9%

Source: Researcher (2024)

The data shown in Table 4.5 illustrates that the respondents had diverse experiences of involvement with airlines. The majority of those surveyed had experience working with airlines for 4-6 years

which represented 36.2%, 42 respondents had experience of 7-10 years which represented 25.4%, 40 respondents had over 10 years and represented 23.9% while 0-3 years were 24 and represented 14.5%. The study investigated the experience of respondents to gauge how conversant the respondents were with the operations of airlines. Rahi, (2017) observed that experience is important as it adds knowledge about the issue being investigated hence experienced respondents are likely to give relevant answers.

4.4 Descriptive Analysis

4.4.1 Fleet Planning and Airline's Financial Performance

The researcher wanted to know how fleet planning as an airline planning decision influences airline's financial performance. The respondents were given statements which depicted fleeting and requested them to illustrate their level of agreement by use of the Likert scale. The findings are displayed in Table 4.6.

Table 4.6 Fleet planning and Airline Financial Performance

Statement on fleet planning	N	Mean	Standard Deviation
Fleet planning determines fleet combination hence increasing efficiency.	166	3.56	0.71
Fleet planning reduces operation cost	166	3.66	1.87
Fleet planning reduces spill cost	166	3.87	0.82
Fleet planning increases recapturing of revenue	166	3.95	0.93
Fleet planning determines capacity for specific aircraft assignment increasing efficiency.	166	3.78	0.27

Source: Researcher (2024)

Findings in Table 4.6 above illustrates the statements on fleet planning: Fleet planning determines fleet combination hence increasing efficiency had a mean score of 3.56, Fleet planning reduces

operation cost had a mean score of 3.66, Fleet planning reduces spill cost had a mean score of 3.87, Fleet planning increases recapturing of revenue had a mean score of 3.95, Fleet planning determines capacity for specific aircraft assignment increasing efficiency had a mean score of 3.78. This data shows the mean scores ranged from 3.56 to 3.95 and according to the rating score by Gay (2005) this is interpreted as the statements on fleeting were influencing high airline financial performance.

The outcomes were similar to those of Renold, et al., (2019) who established that fleeting impacts on airline financial performance. Fleet planning is an essential aspect of aircraft management **(**Park & O'Kelly, (2018). According to Nyatsumba & Pooe, (2022) fleet planning entails establishing the make and number of aircrafts which an air carrier should acquire to offer a profitable service over the long-term planning period. As opined by Mhlanga, (2019) Fleet planning is a strategic decision-making process that considers various factors such as aircraft economics, aircraft performances, commonality, aircraft type preferences, demand, and finance for the selected markets and routes. This observation by Mhlanga, (2019) is supported by the researcher of this current study. Liu et al., (2018) in support of the findings of this investigation observed that for air carriers to provide the required service frequency and increase their profit margin, fleet planning is crucial to accommodate stochastic demand Liu et al., (2018) continues and observes that fleet planning addresses fleet size and fleet mix.

4.4.2 Aircraft Route Planning and Airline's Financial Performance.

The respondents were given statements which depicted aircraft route planning and requested them to illustrate their level of agreement by use of the Likert scale. The responses from the respondents were recorded in Table 4.7 below.

Table 4.7: Aircraft Route Planning and Airline Financial Performance

Statement on aircraft route planning	N	Mean	Standard Deviation
Aircraft route planning determines sequence of flights of an aircraft increasing efficiency	166	3.80	0.51
Aircraft route planning influences the period of the aircraft in the checks	166	3.97	1.72
Aircraft route planning determines economic considerations and expected profitability.	166	4.20	0.61
Aircraft route planning determines route given to an aircraft hence maximum utilization.	166	3.45	0.84
Aircraft route planning determines the maintenance feasible rotation	166	3.76	0.46

Source: Researcher (2024)

The conclusions in Table 4.7 shows that statements: Aircraft route planning determines sequence of flights of an aircraft increasing efficiency had a mean score of 3.80, It influences the period of the aircraft in the checks had a mean score of 3.97, Aircraft route planning determines economic considerations and expected profitability had a mean score of 4.20, Aircraft route planning determines route given to an aircraft hence maximum utilization had a mean score of 3.45 and Aircraft routing determines the maintenance feasible rotation had a mean score of 3.76. The findings show that the average scores ranged from 3.45 to 4.20 which construed as the statements affected airline

financial performance either high or very high. The statement Aircraft route planning determines economic considerations and expected profitability had the highest mean of 4.20 which interpreted as affecting airline financial performance very high.

The results concurred with the findings of Khamasi, (2020) who also observed that aircraft route planning is an essential component of aircraft management. Huang, (2021) argued that aircraft routing involves the selection of the most cost-effective and efficient routes for aircraft to follow, taking into account aspects such as fuel consumption, weather conditions, and air traffic control. This position was also supported by Hassan, et al., (2021). Aircraft route planning is critical to the success of an airline because it can help reduce fuel consumption and costs, improve flight safety, and increase revenue (Garefalakis, 2022). According to Safaei & Jardine, (2018) Air carriers can also minimize time and resource hours by establishing efficient routing to arrive at a feasible solution. According to Shao et al. (2017), aircraft route planning can support airlines in reducing the duration of time and material assets needed to achieve at a feasible solution, producing rotations on a more precise and up-to-date schedule, enhancing the capacity to explore other possibilities, and permitting significant adjustments to be made while still achieving optimal rotations. This is a position which the results of the current study support.

4.4.3 Crew Pairing Planning and Airline's Financial Performance.

The researcher wanted to understand how crew pairing planning as an airline planning decision influences airline's financial performance. The respondents were given statements which depicted crew pairing planning and requested them to illustrate their level of agreement by use of the Likert scale. The results are indicated in Table 4.8.

Table 4.8: Crew paring planning and Airline financial performance

Statement on Crew paring planning	N	Mean	Standard Deviation
Crew pairing planning determines the type of crew assigned to each flight and thus minimize expenses	166	3.28	0.45
Crew pairing planning reduce expenses of accommodation by assigning crew basing on their origins or destination of the flight	166	3.30	0.71
Crew pairing planning determines the crew base where the crew is stationed	166	3.27	0.61
Crew pairing planning influences reduction of union fees	166	2.43	0.76
Crew pairing planning determines the number of days of the trip hence utilizing crew efficiently.	166	2.47	0.83

Source: Researcher (2024)

The conclusions in Table 4.8 depicts the statements: Crew pairing planning determines the type of crew assigned to each flight and thus minimize expenses had mean score of 3.28, Crew pairing planning reduce expenses of accommodation by assigning crew basing on their origins or destination of the flight had average score of 3.30 and Crew pairing planning determines the crew base where the crew is stationed had mean score of 3.27. The average score of these statements ranged from 3.27 to 3.30 which implied the statements influenced airline financial performance in a high manner. The statements: Crew pairing planning influences reduction of union fees had mean score of 2.43 and

Crew pairing planning determines the number of days of the trip hence utilizing crew efficiently had mean score of 2.47 which indicated they influenced airline financial performance low manner. The results seem a bit different with the results of Bett & Njuguna, (2022) who observed that crew pairing planning is an essential aspect of crew management system that enable airline to manage multiple crew bases and hence minimize expenses. Bwire, (2018) said that crew pairing planning is a strategy that airlines use to boost employee satisfaction involves creating schedules that align with crew preferences, including preferred flight legs and desired off-periods, which makes the employees to work better. This is not clear whether the satisfaction reduces expenses or influences financial performance (Camilleri, (2018). This position is supported by the current results as some of the statements in crew pairing planning had low means. However, a study by Chang, et al., (2020) found that efficient crew pairing planning can lower crew operational costs by 3 to 15 percent, which encompasses direct costs such as hotel accommodations and deadheading. This assertion is also backed by the results of the current study as some of the statements in this study had high means which interpreted as they affected airline performance in a high manner.

4.4.4 Schedule Development Planning and Airline's Financial Performance.

In this question the respondents were given statements which depicted schedule development planning as an airline planning decision and requested them to illustrate their level of agreement by use of the Likert scale. The findings were recorded in Table 4.9.

Table 4.9: Airline scheduling planning on Airline financial performance

Statement on schedule development planning	N	Mean	Standard Deviation
Schedule development planning influences aircraft rotational planning of the airline enhancing efficiency	166	3.88	0.77
Schedule development planning influences the flight schedule departure of each aircraft thus attracting as many passengers as possible.	166	4.67	1.74
It determines the time table development of the airline creating efficiency	166	3.77	0.41
It determines the frequency of flights on the selected routes thus increasing revenue	166	4.11	0.55
It influences the type of aircraft to be used for each departure time for maximum utilization.	166	3.82	0.76

Source: Researcher (2024)

The outcomes in Table 4.9 shows statements: Airline schedule development planning influences aircraft rotational planning of the airline enhancing efficiency had an average of 3.88, schedule development planning influences the flight schedule departure of each aircraft thus attracting as many passengers as possible had a mean score of 4.67, It determines the time table development of the airline creating efficiency had a mean score of 3.77, It determines the frequency of flights on the selected routes thus increasing revenue had a mean score of 4.11 and air scheduling influences the type of aircraft to be used for each departure time for maximum utilization had a average score of 3.82. The range of the average scores of the statements were between 3.77 and 4.67 which interpreted that the statements influenced airline financial performance by either high or very high manner. Chege, (2021) opined that schedule development planning is a crucial aspect of aircraft management

which involves the planning and coordination of flight schedules to ensure that the airline operates efficiently and effectively. According to Chen et al., (2017) effective airline scheduling planning can lead to a reduction in operational costs, improved customer satisfaction, and increased revenue. Cook & Billig, (2017) observed that optimizing flight schedules, airlines can reduce the number of empty seats on flights and increase the bookings of passengers per trip. This can lead to a spike in revenue and a reduction in fuel consumption and other operational costs. This position or finding is braced by the current research findings as of the reflection of the high means scores of the statements on airline schedule planning.

4.5 Correlation Analysis

The study also sought to examine the association amongst the dependent variable and the independent variables. Consequently, a correlation scrutiny of the independent variables (fleet planning, airline route planning, crew pairing planning and airline scheduling planning) was conducted against the dependent variable (airline financial performance). Tables 4.10, 4.11, 4.12 and 4.13 below illustrates the outcomes of the analysis.

4.5.1 Correlation Between Fleet Planning and Airline Financial Performance

A correlation between Fleet planning and Airline financial performance was run and the outcomes are tabulated in Table 4.10.

Table 4.10: Correlation Between Fleet Planning Operation Decision and Airline Financial Performance

		Fleet Planning	Airline financial performance
Fleet planning	Pearson Correlation	1	.794**
	Sig. (2-tailed)		.000
	N	166	166
Airline financial performance	Pearson Correlation	.794**	1
	Sig. (2-tailed)	.000	
	N	166	166

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

Source: Researcher (2024)

The results of the evaluation of the association amongst independent variable, fleet planning, and the dependent variable, airline financial performance is displayed in Table 4.10 above. The Pearson Correlation showed a test result of 0.794. This demonstrated a substantial connection between the fleet planning and airline financial performance, and any modifications to the fleet planning decision would have a noteworthy effect on airline financial performance. Secondly, the Pearson Correlation coefficient is positive (0.794), suggesting that an increase in fleet planning decisions will also enhance management performance. Furthermore, the significance (2-tailed) value was zero, which is below 0.05 (<0.05). This illustrates a significant correlation statistically between Fleet planning decisions and Airline financial performance, implying that any adjustments in Fleet planning will significantly impact Airline financial performance. Thus, increases in Fleet planning decisions are likely to improve Airline financial performance.

The significant positive correlation between fleet planning decisions and airline financial performance aligns with previous research that underscores the crucial role of fleet management in shaping operational efficiency and profitability in the airline industry. Renold et al. (2019) highlighted that fleet planning and management are key factors influencing airline cost structures and revenue generation. By strategically managing fleet size, composition, and utilization, airlines can reduce operational costs and optimize fuel efficiency, which directly contributes to financial success. Mhlanga (2019) emphasized that fleet planning is not merely about the acquisition of aircraft, but about the effective allocation and operation of these resources to ensure operational sustainability and profitability. Furthermore, Nyatsumba & Pooe (2022) observed that fleet planning decisions have long-term implications for financial performance, as well-executed fleet planning allows airlines to offer competitive services while minimizing costs. Similarly, Liu et al. (2018) argued that fleet planning is critical in meeting market demand and enhancing profitability, as it ensures that an airline can efficiently match the right aircraft to the appropriate route, balancing passenger demand with operational capacity. This body of literature supports the current findings, which show a robust positive relationship between fleet planning decisions and the financial performance of airlines.

4.5.2 Correlation Between Aircraft Route Planning Operation Decision and Airline Financial Performance.

Once the correlation between aircraft route planning operation decision and airline financial performance was done the following results were obtained and it's displayed in Table 4.11.

Table 4.11: Correlation between route planning operation decision and Airline financial performance

		Aircraft route planning operation decision	Airline financial performance
Aircraft route planning	Pearson Correlation	1	.777**
	Sig. (2-tailed)		.000
	N	166	166
Airline financial performance	Pearson Correlation	.777**	1
	Sig. (2-tailed)	.000	
	N	166	166

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

Source: Researcher (2024)

The outcomes shown in Table 4.11 above demonstrate that the connection between the choice of Aircraft route planning and Airline financial performance was examined. The Pearson Correlation coefficient was 0.777 and this indicated a robust association between Aircraft route planning operation decision and Airline financial performance, and any adjustment that would be made in increasing Aircraft route planning operation decision would strongly change Airline financial performance. This implies that potential Aircraft route planning operation decision are high, Airline financial performance also rises.

Consequently, the Sig (2-tailed) value was found to be 0.000, which is less than 0.05 (<0.05). This displays a statistically momentous association between aircraft route planning operation decisions

and airline financial performance, meaning that any increase or decrease in these decisions would considerably affect airline financial performance. Therefore, it was concluded that there was strong association between Aircraft route planning operation decision and Airline financial performance.

The strong positive correlation between aircraft route planning operation decisions and airline financial performance supports existing literature that emphasizes the critical role of efficient route planning in enhancing profitability and operational efficiency. Huang (2021) argued that aircraft route planning decisions are integral to optimizing fuel consumption, reducing turnaround times, and ensuring the effective utilization of aircraft, all of which contribute to improved financial outcomes. Similarly, Garefalakis (2022) highlighted that strategic route selection, considering factors such as demand patterns, flight frequencies, and fuel efficiency, directly impacts an airline's bottom line. Furthermore, Wensveen (2018) observed that airlines that adopt data-driven approaches to aircraft route planning —taking into account both economic and geographic factors—tend to maximize their capacity utilization, reduce operational costs, and increase revenue per available seat mile (RASM). The findings from this study resonate with these conclusions, as the positive relationship between aircraft route planning and financial performance implies that strategic adjustments in route plannin can significantly enhance an airline's profitability. Additionally, Khamasi (2020) found that optimizing aircraft route planning leads to a reduction in operational inefficiencies, such as underutilized aircraft, further contributing to a positive financial impact. Thus, this study's results affirm the importance of strategic aircraft route planning in improving the financial performance of airlines.

4.5.3 Correlation Between Crew Pairing Planning Operation Decision and Airline Financial Performance

The correlation between crew pairing planning operation decision and airline financial performance was done and the outcomes were captured in Table 4.12.

Table 4.12: Correlation Between Crew Pairing Planning Operation Decision and Airline Financial Performance

		Crew pairing Planning operation decision	**Airline financial performance**
Crew pairing planning	Pearson Correlation	1	.663**
	Sig. (2-tailed)		.000
	N	166	166
Airline financial performance	Pearson Correlation	.663**	1
	Sig. (2-tailed)	.000	
	N	166	166

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

Source: Researcher (2024)

The responses in Table 4.12 above demonstrates that the association between Crew pairing planning operation decision and Airline financial performance was tested. The results indicated from Pearson Correlation test was 0.663, meaning the association between Crew pairing planning operation decision and Airline financial performance was strong, and any vary that would be made in the Crew pairing planning operation decision would strongly vary Airline financial performance.

Furthermore, the Pearson Correlation coefficient was positive (0.663) indicating that a slight adjustment in Crew pairing planning operation decision would significantly affect Airline financial performance. The results indicated that the Sig (2-tailed) value was zero, which is less than 0.05 (<0.05). This demonstrates a significant statical association between Crew pairing planning operational decisions and Airline financial performance. In other words, any changes in crew pairing planning operational decisions are likely to significantly impact airline financial performance. This also showed that increases in Crew pairing planning operation decision would increase Airline financial performance.

The positive and significant correlation between crew pairing planning operation decisions and airline financial performance aligns with previous research that underscores the role of efficient crew management in optimizing operational costs and enhancing profitability. Bett and Njuguna (2022) noted that crew pairing planning decisions—such as assigning crew based on their home base and operational demands—reduce accommodation and transit costs, which can directly improve financial outcomes. Furthermore, Bwire (2018) emphasized that crew pairing planning is a critical component in reducing unnecessary labor expenses, contributing to the overall efficiency of airline operations. This is consistent with findings from Camilleri (2018), who observed that effective crew scheduling, which maximizes crew utilization and minimizes idle time, significantly reduces operational costs, thereby improving financial performance. Additionally, Chang et al. (2020) highlighted that efficient crew pairing planning can reduce operational costs by up to 15%, primarily through savings on hotel accommodations and deadheading costs. This supports the results of this study, which indicate that even small adjustments in crew pairing planning decisions can lead to significant improvements in an airline's financial performance. As such, this study reinforces the importance of optimizing crew pairing planning strategies to enhance financial sustainability and reduce operating costs within the aviation industry.

4.5.4 Correlation between schedule development planning decision and Airline Financial performance

Table 4.13 below shows an analysis of the findings of the correlation between schedule development planning and airline financial performance.

Table 4.13 Correlation between Schedule development planning decision and Airline financial performance

		Schedule development planning decision	Airline financial performance
Schedule development planning	Pearson Correlation	1	.868**
	Sig. (2-tailed)		.000
	N	166	166
Airline financial performance	Pearson Correlation	.868**	1
	Sig. (2-tailed)	.000	
	N	166	166

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

Source: Researcher (2024)

Table 4.13 tabulates the findings of a test of the relationship between airline financial performance and schedule development planning. The relationship between schedule development planning decision and airline financial performance was positively robust, as specified by the Pearson Correlation coefficient of 0.868. Any change that would be made to adjust schedule development planning would have a substantial effect on airline financial performance. It's a clear implication

that when potential schedule development planning decision is high, airline financial performance also rises.

Conversely, the Sig (2-tailed) value was found to be 0.000, which is below the 0.05 threshold (<0.05). This depicts a noteworthy statistical association amongst schedule development planning decisions and airline financial performance. Thus, any adjustments in Schedule development decisions are likely to significantly affect Airline financial performance. As a result, it was concluded that a strong association exists between Schedule development planning decisions and Airline financial performance.

The strong positive correlation between schedule development planning decisions and airline financial performance is consistent with existing literature, which highlights the pivotal role that effective scheduling plays in optimizing airline revenue and minimizing operational inefficiencies. According to Chege (2021), airline scheduling significantly influences financial outcomes by aligning flight schedules with passenger demand, thus maximizing seat occupancy and improving overall revenue per available seat mile (RASM). Cook and Billig (2017) further emphasized that well-designed flight schedules reduce idle times and operational delays, thereby improving operational efficiency and customer satisfaction, which in turn contribute to enhanced financial performance. The findings from this study corroborate these assertions, showing that any strategic adjustments in schedule development planning are likely to have a substantial and positive impact on airline financial performance. Additionally, Osman et al. (2021) noted that airlines that implement dynamic scheduling systems, which adjust based on real-time demand and operational constraints, can achieve a competitive advantage and improve profitability. This study's results reinforce the importance of adopting data-driven scheduling practices to optimize fleet utilization, minimize costs, and maximize revenue generation, all of which contribute significantly to an

airline's financial sustainability. Therefore, the strong association observed in this study between schedule development planning and airline financial performance underlines the critical importance of this operational decision in ensuring long-term financial success.

4.6 Diagnostic Test

Four predictor variables were analyzed using multiple regression to establish how strongly they were associated: crew pairing planning operation, fleet planning operation, aircraft route planning, and schedule development planning, with Airline financial performance being the dependent variable. It's imperative to appreciate that multiple linear regression is predicated on a number of significant assumptions, such as the need for the dependent and independent variables bears a linear association and the lack of multicollinearity (illustrating that the correlation between the independent variables should be less significant), constant variance of the residuals, and the requirement for multivariate normality (Kothari, 2006).

4.6.1 Normality Test

This test aims to determine whether parametric or non-parametric tests should be applied to the data. Using the Shapiro-Wilk Test, a parametric test for normality, the data's normality was evaluated. We infer that the information is taken from a population that is habitually distributed if the p-value is more than 0.05, meaning that the null hypothesis cannot be rejected (Saunders et al., 2009). According to the evaluation's null hypothesis, the values are drawn from a normal distribution. A properly distributed prediction error is required. The researcher highlights that assessing the normalcy of the data has been demonstrated to enhance the caliber of the research by shepherding in the informed selection of the analytical methods to be employed (Mishra et al., 2019). When the data is distributed normally, descriptive statistics like Average and Standard Deviation yield accurate findings.

Table 4.14 Normality Test

Variable	Observations (Obs)	W Statistic (W)	V Statistic (V)	Z Score (z)	p-value (Prob>z)
	60	0.94378	3.056	2.408	0.00802

Source: Researcher (2024)

The p-value (0.05) is more than Shapiro-Wilk Test (0.00802). Consequently, the null hypothesis, according to which values in this test originate from a normal distribution, should be rejected. Therefore, infer the conclusion that the values are non-normal.

4.6.2 Linearity Test

For purposes of examining the linear relationship between the variables, the study employed Pearson's correlation coefficient, as advocated by Dancey and Reidy (2004). The muscle and course of the linear relationship are both shown by this coefficient. Whereas a positive coefficient denotes a direct relationship—that is, when one variable increases, the other increases—a negative coefficient denotes an indirect link, in when one variable increases, it causes a reduction in the other (Field, 2009). The researcher first examined whether a linear relationship exists among the predictor variables: schedule development planning decision, fleet planning operation decision, crew pairing planning operation decision, and aircraft route planning operation decision. A scatter plot and a line of fit was drawn for establishing the R-squared value with the aim of assessing the existence of linearity amongst the

independent and dependent variables. The prevalence of a linear association between the predictor variables became apparent when this assumption was satisfied.

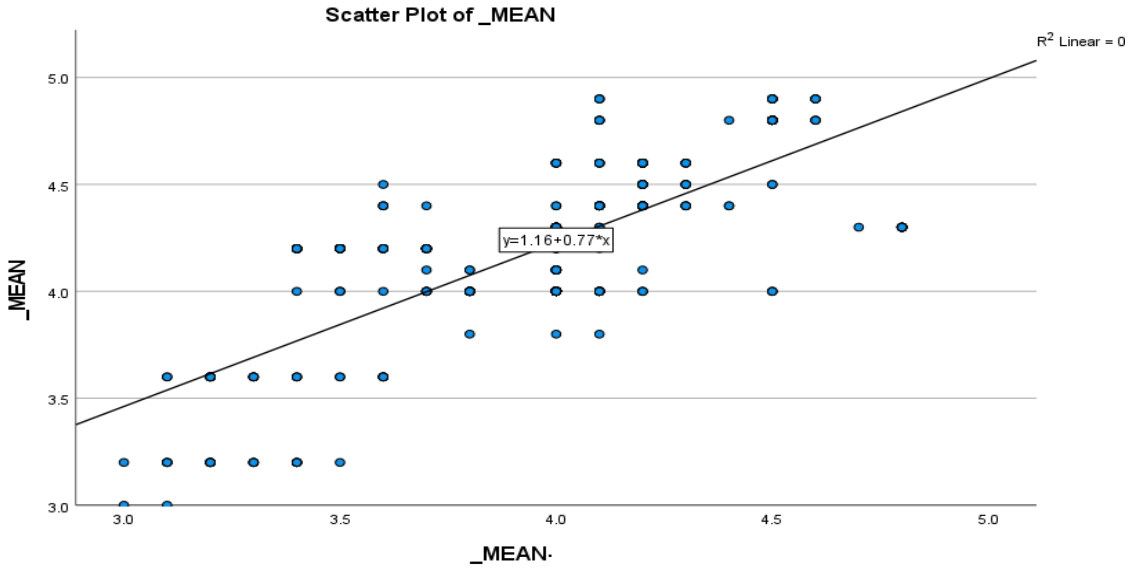

Figure 4.1: Scatter Plot Illustrating Linear Relationship Between Fleet planning And Airline Financial Performance.

Source: Researcher (2024)

The scatter plot presented in Figure 4.1 demonstrates the relationship between fleet planning operation decisions and airline financial performance. The positive trend in the scatter plot indicates that as the efficiency of fleet planning decisions improves, airline financial performance also experiences an upward trajectory. This suggests that better fleet planning, in terms of selecting the right aircraft mix, optimizing fleet size, and ensuring efficient aircraft utilization, directly enhances revenue generation, reduces operational costs, and improves overall financial sustainability. The distribution of data points around the fitted line further supports the notion that fleet planning decisions significantly contribute to financial outcomes. The consistency of data points suggests that

the relationship is strong, reinforcing findings from the correlation and regression analyses that showed a significant positive association between fleet planning and financial performance.

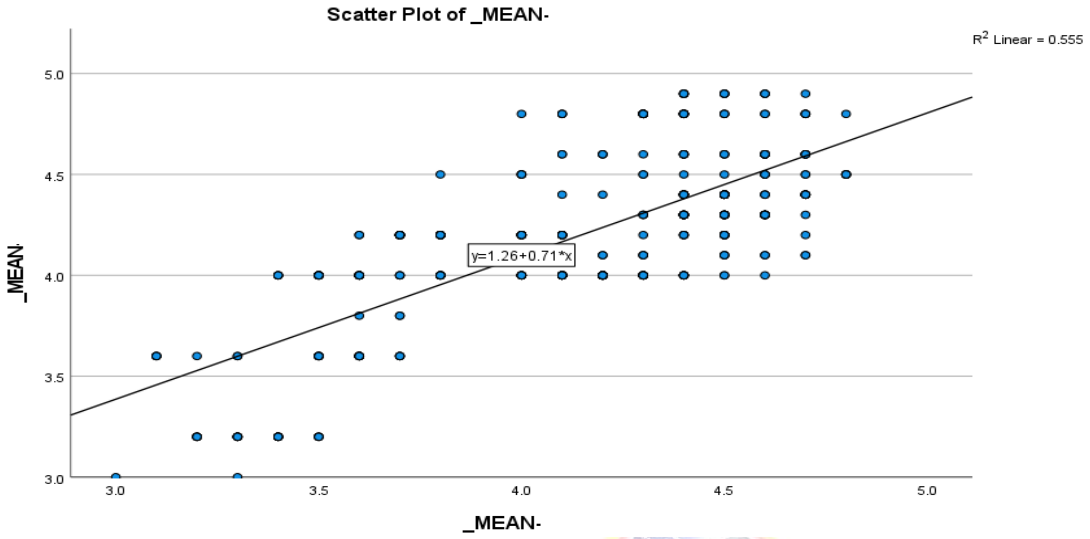

Figure 4.2: Scatter Plot Illustrating Linear Relationship Between Aircraft Route Planning And Airline Financial Performance.

Source: Researcher (2024)

Figure 4.2 presents the scatter plot depicting the linear relationship between aircraft route planning decisions and airline financial performance. The positive trend observed in the scatter plot suggests that airlines that implement strategic aircraft route planning decisions experience improved financial performance. Efficient aircraft route planning ensures that aircraft utilization is maximized while minimizing operational inefficiencies such as idle time, fuel wastage, and underutilization of resources. The alignment of data points along the fitted trend line confirms that optimized route planning strategies contribute to improved financial outcomes. This supports the argument that strategic route planning, including choosing high-demand routes and optimizing layovers, directly influences an airline's ability to generate revenue while controlling costs. The presence of a relatively

strong linear pattern in the scatter plot indicates a substantial relationship between aircraft route planning and financial performance, corroborating the statistical findings from correlation and regression analyses.

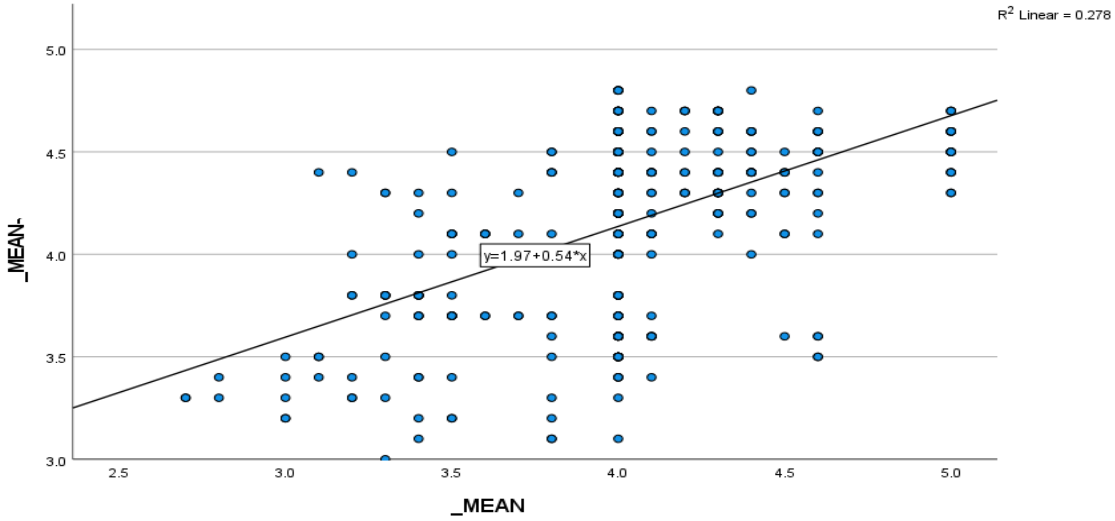

Figure 4.3: Scatter Plot Illustrating Linear Relationship Between Crew Pairing Planning and Airline Financial Performance

Source: Researcher (2024)

Figure 4.3 illustrates the linear association between crew pairing planning decisions and airline financial performance. The scatter plot shows a moderately positive trend, indicating that as crew pairing planning strategies become more efficient, financial performance improves correspondingly. Crew pairing planning is a critical operational decision that directly affects labor costs, which form a significant component of airline expenditures. Optimized crew pairing planning ensures that crew schedules are aligned with operational demands, thereby minimizing excess labor costs and improving operational efficiency. The scatter plot suggests that while crew pairing planning has a notable impact on financial performance, the relationship is slightly weaker compared to other operational planning factors like fleet planning and aircraft route planning. This may be attributed to

external factors such as labor agreements, regulatory constraints, and unionized workforce considerations that sometimes limit the full flexibility of pairing planning optimization. However, the data points exhibit a clear upward trend, indicating that effective crew pairing planning decisions contribute to cost savings and improved financial sustainability.

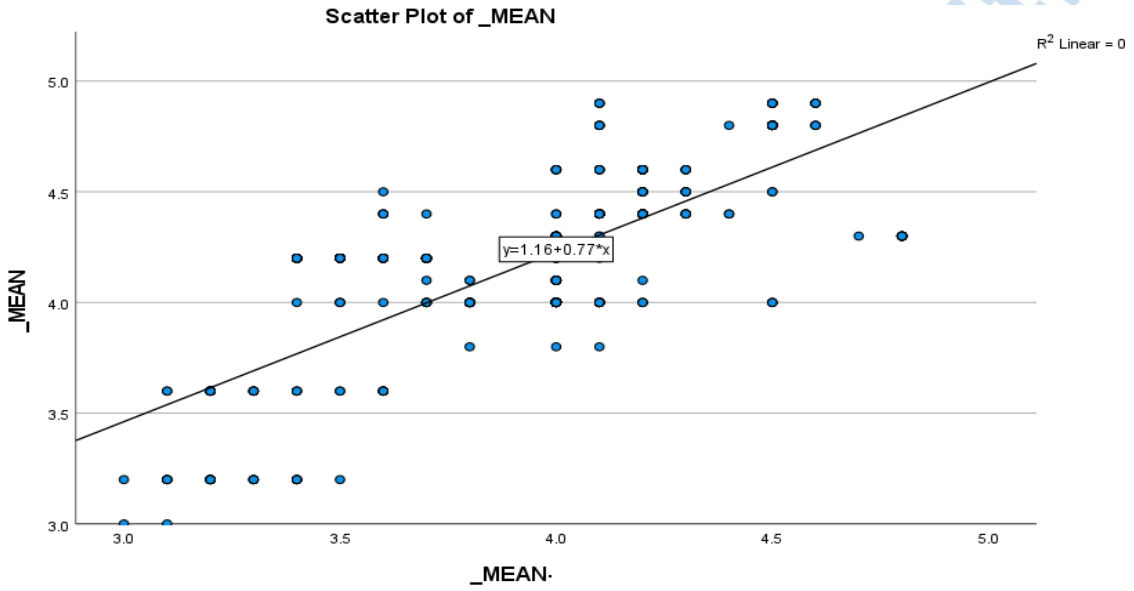

Figure 4.4: Scatter plot illustrating Linear Relationship between schedule development planning

Source: Researcher (2024).

The scatter plot in Figure 4.4 provides an illustration of the relationship between schedule development planning decisions and airline financial performance. A strong positive linear trend is observed, indicating that well-structured scheduling decisions significantly enhance an airline's financial performance. Effective scheduling involves aligning flight departures, arrivals, and turnarounds with peak passenger demand, reducing flight delays, and ensuring optimal aircraft

utilization. The closeness of data points to the fitted line suggests a strong and consistent relationship between schedule development planning and financial outcomes. This confirms the statistical findings that schedule development planning is one of the most influential factors in determining airline financial performance. A well-planned schedule minimizes operational inefficiencies, maximizes seat occupancy, and enhances customer satisfaction, all of which contribute to higher revenue and cost efficiencies. The results emphasize the need for airlines to adopt data-driven scheduling approaches to align flight operations with market demand, thereby optimizing profitability.

4.6.3 Homoscedasticity Test

The premise behind homoscedasticity, at times referred to as the homogeneity of variance, is that the dependent variable consistently exhibits levels of variance within a particular spectrum of values for an independent variable (Black, Tatham, Anderson, and Hair, 1998). For purposes of assessing homoscedasticity, a one-way ANOVA method was adopted, utilizing the Evene (1960) test for equality of variance. According to Zikmund (2003) and Hair et al. (1998), homogeneity of variances is shown by a p-value larger than the significance level of $\alpha = 0.05$.

Yang, Tu, and Chen (2019) highlights that homoscedasticity is a postulation normally overlooked in research, despite its significant importance. To further enhance the linear regression's reliability for examinations conducted in this investigation, the homogeneity of variance in the data has to be taken into account. The data's consistency gives additional statistical analyses, like Multiple Linear Regression, a great deal of credence.

According to Knaub (2007), determining the nature of variances of the numerous predictor variables in regression analysis are uniform is the goal of the homoscedasticity check. A conclusion can be drawn from the data to be homoscedastic if the variances are unchanging, and heteroscedastic if they

vary. Harwell and Abulela (2020) highlight that for statistical results to be reliable, it is vital to evaluate normality, homoscedasticity, and data independence. A visual diagrammatic representation of the homogeneous values in contrast to the anticipated an array of the dependent variable indicates that the investigator has established that the residuals for the variables under research are stable. This plot did not display any significant signs of funneling or similar patterns, demonstrating that the homoscedasticity assumption has been met.

Scatter plot under fleet planning operational decision.

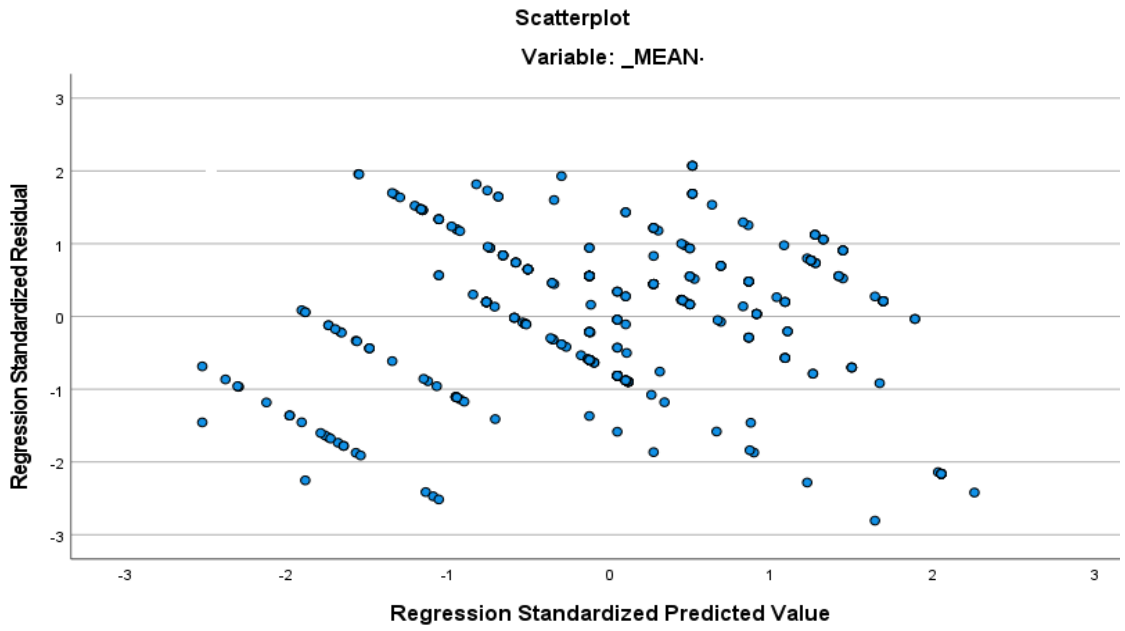

Figure 4.5: Scatter plot under fleet

Source: Researcher (2024)

This figure visually represents the relationship between the residuals and the predicted values for fleet planning operational decisions. The absence of a funnel-shaped pattern suggests that the variance of residuals is consistent across all levels of the predictor variable. This indicates that homoscedasticity

is maintained, meaning the model does not suffer from systematic variance changes that could lead to biased standard errors and unreliable hypothesis tests.

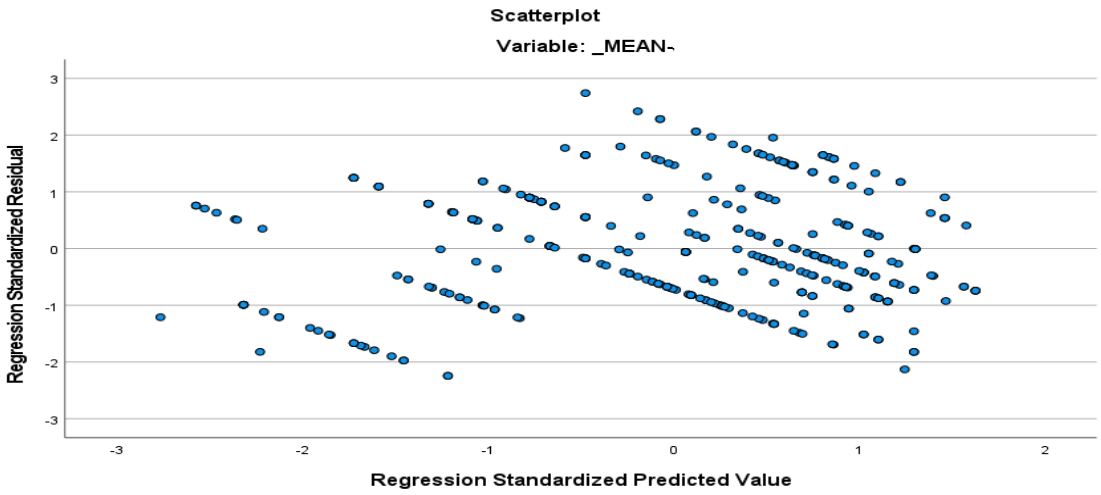

Figure 4.6: Scatter Plot Under Aircraft Route Planning

Source: Researcher (2024)

The scatter plot for aircraft route planning also demonstrates no apparent pattern in the spread of residuals. If the variance of residuals increased or decreased systematically, it would suggest heteroscedasticity, requiring corrective measures such as data transformation or robust standard errors. However, the even distribution of points in the plot confirms that the assumption of homoscedasticity is satisfied for this predictor.

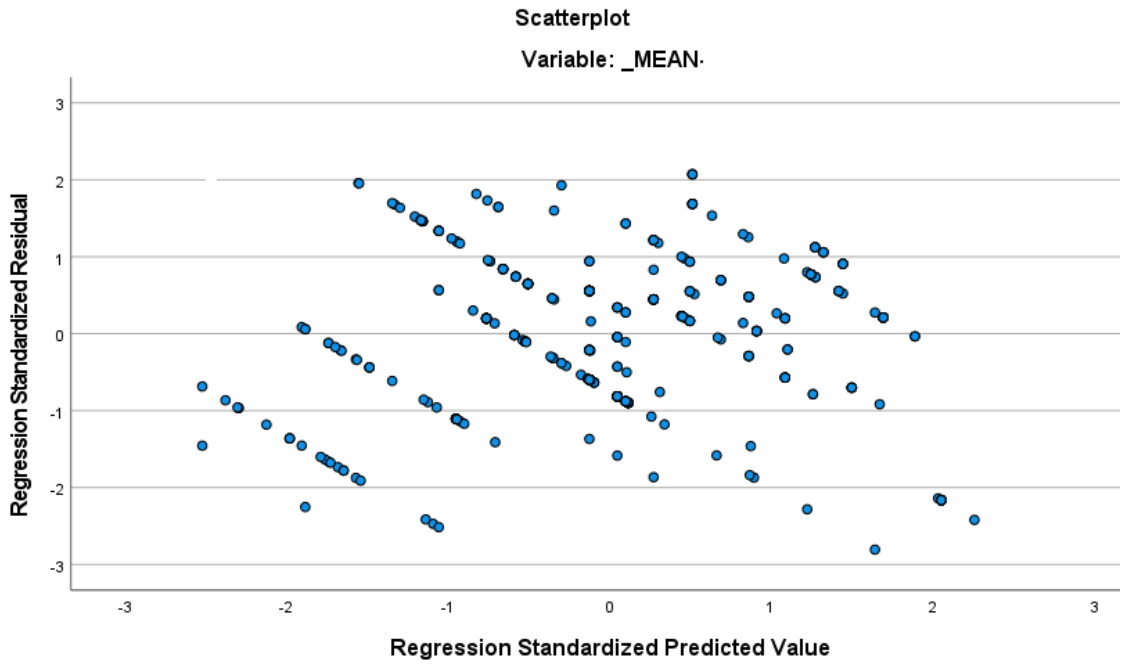

Figure 4.7: Scatter Plot Under Crew Pairing Planning

Source: Researcher (2024)

This scatter plot evaluates whether the residual variance is constant for the predictor variable of crew pairing planning. The points are scattered randomly without forming any distinct patterns, indicating that the residuals maintain equal variance across all fitted values. This means the regression model properly accounts for the variance in airline financial performance, and no additional adjustments are necessary.

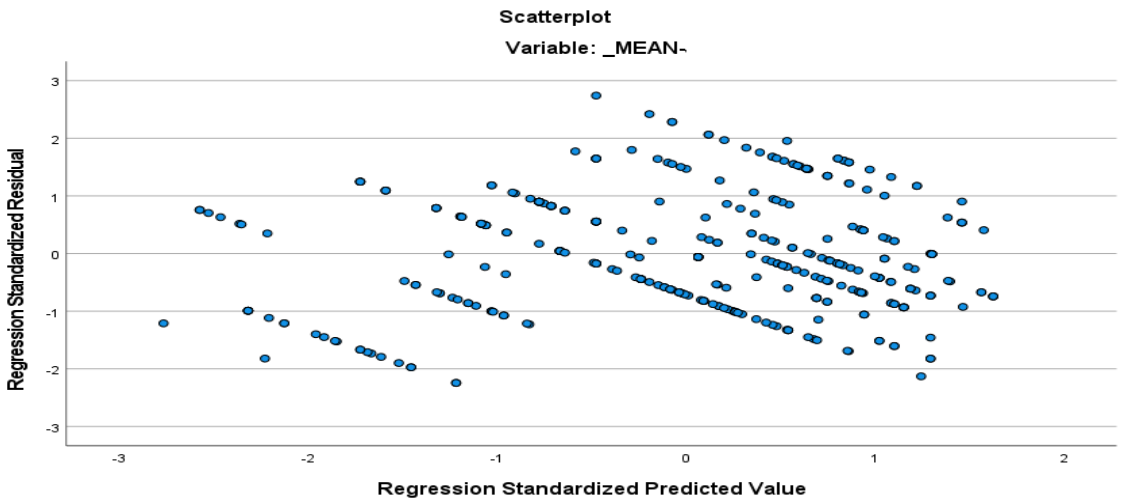

Figure 4.8: Scatter Plot Under Schedule Development Planning

Source: Researcher (2024)

For schedule development planning, the scatter plot follows a similar pattern, with no clear increase or decrease in residual variance at different predicted values. The lack of systematic spread in the residuals supports the assumption of homoscedasticity, reinforcing the validity of regression estimates related to this variable.

4.6.4 Multi-collinearity Test

After testing for possibility of multi-collinearity in the research employing the Variance Inflation Factor (VIF), tolerance levels were examined. Whereas the value of tolerance of more than 0.1 for the given independent and dependent variables designates absence of multicollinearity, a VIF greater than 10 (VIF ~ 10) portrays a multicollinearity problem (Field, 2009). According to Shrestha (2021), multicollinearity impairs results from data analysis by rendering significant variables irrelevant. Consequently, multicollinearity needs to be detected in the gathered data in order for the analysis to be appropriate.

In the current investigation, the Variance Inflation Factor, or VIF, was employed by the researcher to evaluate for multicollinearity in the data. The Variance Inflation Factor examines the extent of which the predicted regression coefficient is magnified in the presence of a correlation amongst the non-dependent variables. Variance Inflation Factor (VIF) tolerance is the opposite of VIF, with VIF < 1 indicating no correlation between variables, VIF 1–5 indicating moderate correlation, and VIF 5–10 indicating multicollinearity (Shrestha, 2021).

If the correlation is higher than 0.8, multicollinearity may be evident (Guirung, 2022). Tolerance ought to be less than 1 and the VIF ought not to be more than 10. The investigator has established that there exists a respectable measure of multi-collinearity among the independent variables. Establishment of the same has been illustrated by the VIF outcomes, which all of them do not exceed 10 and, in reality, a greater number of them are less than 2. Corresponding tolerance values greater than 0.2 suggest multicollinearity, a significant factor in multiple linear regression.

Table 4.15: Results for Multicollinearity Test

VIF variables	**Tolerance($1-R^2$)** $(\frac{1}{VIF})$	**=**	**VIF (Variance Inflating Factors)**
Fleet Planning	0.549		1.82
Aircraft route planning	0.556		1.80
Crew pairing planning	0.566		1.80
Schedule development planning	0.558		1.82
Mean VIF	**0.55725**		**1.81**

Source: Researcher (2024)

Decisions regarding fleet planning operations, aircraft route planning operations, crew pairing planning operations, and schedule development planning do not appear to be significantly correlated with airline financial performance, as indicated by the VIF values, which fall between 1.80 and 1.82.

The multicollinearity issue was therefore resolved since the variables met the presumption of no multicollinearity.

4.6.5 Test of Autocorrelation

Table 4.16 tabulates the conclusions from the test of independence of observations. The presumption that one observation's errors are unrelated to any other observation's errors is supposed to apply to a variety of scenarios. Errors are residuals or the discrepancy between a case's actual score and the score that the regression equation estimated. The absence of serial correlation suggests that the residual size for one case is independent of the residual size for the subsequent case. By use of the Durbin Watson statistic, the presence of serial correlation amongst the residuals was investigated. An appropriate range is 1.5 to 2.50, and generally speaking, the residuals have no association if the Durbin Watson statistic is 1.42. There is a range of 0 to 4 for the Durbin Watson statistic. These findings imply that serial correlation is not present in errors.

Table 4.16: Results of Autocorrelation Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.788[a]	0.620	0.615	0.74239	1.42

a. Predictors: (Constant), Fleet plannning, aircraft route planning, crew pairing planning and schedule development planning

b. Dependent Variable: Airline financial performance

Source: Researcher (2024)

The assumptions for the multiple linear regressions were tested and after confirmation of the assumptions of regression was rum between Fleet planning, aircraft route planning, crew pairing planning and schedule development planning and Airline financial performance.

4.7 Regression Analysis

Regression analysis was conducted to examine the influence of operational planning decisions—specifically fleet planning, aircraft route planning, crew pairing planning, and schedule development planning—on the financial performance of airlines operating at Wilson Airport. This section provides an in-depth interpretation of the model summary, analysis of variance (ANOVA), and regression coefficients. The results establish the predictive power of operational planning decisions in determining airline financial performance, aligning with existing literature while shedding light on the relative contribution of each planning decision.

Table 4.17: Model summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.902[a]	.826	.819	.08894

a. Predictors: (Constant), Fleet planning, aircraft route planning, crew pairing planning and schedule development planning decision

Source: Researcher (2024)

The regression model summary revealed an R-value of 0.902, signifying a strong positive correlation between the predictor variables (fleet planning, aircraft route planning, crew pairing planning, and schedule development planning) and the dependent variable (financial performance of airlines). The R-squared (R^2) value of 0.826 indicates that the predictor variables collectively explain 82.6% of the variation in financial performance, while the remaining 17.4% is attributable to other factors not captured within this model. The adjusted R^2 of 0.819 closely aligns with the R^2 value, affirming the model's reliability in explaining financial performance.

These findings suggest that operational planning plays a crucial role in influencing financial performance among airlines operating at Wilson Airport. The high R^2 value corroborates previous studies, such as Bett and Njuguna (2022), who established that effective planning decisions significantly enhance airline performance by improving efficiency, reducing costs, and increasing profitability. Similarly, Chang et al. (2020) emphasized that planning strategies, such as aircraft route planning and schedule development planning, are instrumental in optimizing airline revenues. The model's strength in predicting financial performance underscores the necessity of structured operational planning in the aviation sector.

The results from the ANOVA test show that the overall regression model is statistically significant in predicting airline financial performance. The F-statistic value of 582.860 with a p-value of 0.000 confirms that the independent variables collectively have a significant effect on the dependent variable. Given that the p-value is below the conventional threshold of 0.05, the null hypothesis that operational planning decisions do not influence financial performance is rejected.

Table 4.18: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.786	4	4.703	582.860	.000[a]
	Residual	.989	164	.007		
	Total	19.775	166			

a. Predictors: (Constant Fleet planning, aircraft route planning, crew pairing planning and schedule development planning

b. Dependent variable: Airline financial performance

Source: Researcher (2024)

The large F-ratio indicates that the variance explained by the predictor variables is significantly greater than the unexplained variance, reinforcing the robustness of the model. This finding is consistent with past research, such as that of Khamasi (2020), who found that operational planning contributes significantly to an airline's cost efficiency and financial sustainability. Similarly, Renold et al. (2019) highlighted that strategic planning decisions, including fleet selection and route optimization, enhance operational profitability by minimizing overhead costs and maximizing revenue streams.

Table: 4.19 Regression coefficients

Model	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	T-Value (T)	Significance (Sig.)
(Constant)	1.985	0.095		20.894	0
Fleet planning	0.373	0.04	0.47	9.325	0.001
Aircraft route planning	0.482	0.149	0.613	5.309	0
Crew pairing planning	0.257	0.077	0.237	3.337	0
Schedule development planning	0.491	0.196	0.234	4.255	0

Source: Researcher (2024)

The regression equation was: $Y = \beta0 + \beta1X1 + \beta2X2 + \beta3X3 + \beta4X4 + \varepsilon$

Therefore: -

$Y=1.985+0.373X_1 +0.482X_2 + 0.257X_3 + 0.491X_4$

Sig values = β0 (0.00), β1(0.001), β2(0.00), β3(0.00), β4(0.00)

The constant value (β0) of 1.985 suggests that when all predictor variables are set to zero, the baseline financial performance of airlines remains positive at this level. This means that even without optimizing fleet planning, aircraft route planning, crew pairing planning, or schedule development

planning, airlines may still maintain some financial stability, likely due to external factors such as government regulations, customer demand, or market conditions.

Among the independent variables, schedule development ($\beta 4 = 0.491$, $p = 0.000$) had the highest influence on financial performance, suggesting that optimizing flight schedules significantly enhances profitability. This supports the findings of Osman et al. (2021), who observed that precise scheduling improves seat occupancy, reduces delays, and enhances customer satisfaction, all of which contribute to higher revenue.

Aircraft route planning ($\beta 2 = 0.482$, $p = 0.000$) also exhibited a strong impact on financial performance, reinforcing the notion that well-planned routes ensure cost-effective fuel consumption, optimal aircraft utilization, and minimized turnaround times. This aligns with research by Wang et al. (2019), which indicated that effective aircraft routing minimizes operational disruptions and enhances revenue generation by serving high-demand routes.

Fleet planning ($\beta 1 = 0.373$, $p = 0.001$) was another significant predictor, indicating that fleet composition and aircraft selection influence airline efficiency and cost structure. The findings support Babić et al. (2017), who asserted that airlines with a well-structured fleet achieve higher financial returns by optimizing fuel efficiency, maintenance costs, and operational flexibility.

Crew pairing planning ($\beta 3 = 0.257$, $p = 0.000$) had the least but still significant effect on financial performance. This suggests that while efficient crew management reduces operational costs, its impact is lower than that of scheduling and routing. The findings correspond with Bett and Njuguna (2022), who noted that crew pairing planing optimization reduces personnel costs but is subject to regulatory limitations and labor agreements.

Overall, all predictor variables had positive and significant effects on financial performance, affirming that operational planning decisions collectively enhance airline profitability. These results

mirror previous literature, particularly studies by Nyatsumba and Pooe (2022), who emphasized that a combination of effective fleet planning, route planning, scheduling planning, and crew pairing planning contributes to long-term financial success in the airline industry.

The regression results provide strong empirical evidence that operational planning significantly affects the financial performance of airlines at Wilson Airport. The high R^2 value, significant F-statistic, and strong beta coefficients indicate that strategic operational decisions are critical in maintaining financial stability and improving revenue streams.

The findings align with resource-based theory, which posits that firms achieve competitive advantages by effectively utilizing their resources (Barney, 1991). In the aviation sector, operational planning decisions represent key strategic resources that, when managed effectively, enhance financial performance. The study also supports systems theory, which views airlines as complex systems where interconnected decisions, such as fleet composition, scheduling, and routing, collectively impact overall performance.

Furthermore, the study extends prior research by providing empirical evidence specific to the Kenyan aviation industry. While previous studies (e.g., Chang et al., 2020; Bett and Njuguna, 2022) focused on global and regional airline markets, this study contextualizes the impact of operational planning within Kenya's aviation sector. The findings highlight the need for local airlines to adopt data-driven planning strategies to enhance their competitiveness.

The results also underscore the policy implications for aviation regulators, airline executives, and policymakers. Given the significant role of schedule development planning and aircraft route planning in financial performance, regulatory bodies such as the Kenya Civil Aviation Authority (KCAA) should encourage airlines to leverage technological innovations, such as artificial

intelligence and big data analytics, to optimize these functions. Airlines should also consider strategic partnerships, such as code-sharing agreements, to enhance route efficiency and revenue generation.

In summary, the regression analysis confirms that operational planning decisions significantly influence the financial performance of airlines operating at Wilson Airport. The findings highlight the relative importance of schedule planning, route planning, fleet planning, and crew pairing planning, with schedule development planning exhibiting the highest impact. The results align with existing literature, reinforcing the necessity for airlines to implement strategic operational planning to enhance financial sustainability. Given the competitive nature of the aviation industry, Kenyan airlines should prioritize data-driven decision-making to optimize operational efficiency and maximize profitability.

4.8 Qualitative Data Analysis

This analysis emanated from the interviews conducted with the eight head of airlines. The emerging themes from qualitative data were determined using cluster analysis of data of the interview transcripts. Similar items or responses in the transcripts were grouped to form a theme. According to Pham, (2018) the purpose of thematic analysis of qualitative data was to establish a comparison and categorize primary themes to establish commonalities in the participants' perspectives, translating them into an understandable explanatory framework, and to gauge how it supports the quantitative data. The themes that emerged were:

i. Fleet planning decision influence on profit of airline’s
ii. Crew pairing planning and minimization on enhancing return on assets of an airline.
iii. Aircraft route planning and influence on the return on equity of airlines.
iv. Schedule development planning and enhancing of Airline profits.

4.8.1 Theme One: Influence of Fleet Planning Decisions on Airline Profitability

Fleet planning, which refers to the strategic selection and management of an airline's aircraft fleet, is a critical operational decision that directly impacts financial performance. Respondents acknowledged the importance of fleet composition in determining efficiency, operational costs, and revenue generation. In response to the question, *"How do you think fleet planning as an airline planning decision influences airline's profit? Explain"*, several respondents highlighted the strong relationship between fleet planning decisions and profitability.

For instance, respondents R1, R4, and R7 emphasized:

"It is due to excellent fleet decision that we are a profitable firm."

This response aligns with findings from Renold et al. (2019), who examined the financial performance of airlines operating in long-haul markets under different business models and found that effective fleet management significantly improved cost efficiency and revenue maximization. Airlines that strategically selected fuel-efficient, high-capacity aircraft achieved better financial outcomes due to reduced operational costs and optimized revenue per seat mile.

Additionally, research by Morrell (2021) asserts that fleet selection influences key cost drivers such as fuel consumption, maintenance expenses, and aircraft leasing costs, all of which have direct implications for profitability. The findings of this study confirm that airlines that invest in modern, fuel-efficient aircraft gain a competitive edge by minimizing fuel expenditures, which typically account for 30–40% of total operational costs (Wensveen, 2018).

Furthermore, Bett and Njuguna (2022) highlighted that fleet commonality—using a uniform set of aircraft types—lowers maintenance and training costs, leading to significant financial gains. Respondents from this study agreed with this notion, citing that operating a homogeneous fleet allows for better crew efficiency, easier aircraft substitution, and streamlined maintenance operations, all of which contribute to profit maximization.

These insights demonstrate that fleet planning is not merely about acquiring aircraft but involves making strategic choices regarding aircraft type, fuel efficiency, seating capacity, and compatibility with the airline's route network. This study reinforces previous research by confirming that airlines that optimize their fleet composition enhance operational efficiency, reduce costs, and improve overall financial performance.

4.8.2 Theme Two: Crew Pairing planning and Its Impact on Return on Assets (ROA)

Crew pairing planning, the process of assigning flight crew members to specific trips based on operational requirements, significantly influences an airline's financial performance. Respondents were asked, *"Do you think crew pairing planning enhances the return on assets (ROA) of an airline?"* The majority agreed that effective crew pairing contributes to financial efficiency and asset optimization.

The respondents generally agreed that crew pairing planning plays a key role in cost management, particularly in minimizing expenses related to crew accommodation, per diem allowances, and crew repositioning. Several participants, including R2 and R6, noted that pairing crew members based on their home bases and flight routes reduces unnecessary layover costs, thereby improving overall profitability. These findings align with Wang et al. (2021), who emphasized that optimized crew pairing minimizes logistical inefficiencies, allowing airlines to maximize resource utilization and improve ROA.

Moreover, Bwire (2018) highlighted that effective crew pairing reduces fatigue-related inefficiencies and enhances operational reliability, resulting in fewer delays and higher on-time performance, which in turn strengthens customer satisfaction and brand reputation. Respondents from this study echoed this sentiment, noting that well-structured crew pairing not only improves cost efficiency but also enhances employee morale, leading to increased productivity and reduced attrition rates.

Further supporting these findings, Chang et al. (2020) found that optimizing crew schedules can reduce crew operational costs by 3–15%, translating to significant cost savings for airlines operating in highly competitive markets. Similarly, Camilleri (2018) argued that aligning crew schedules with operational demands minimizes unnecessary crew repositioning flights, reducing both direct costs and indirect inefficiencies.

The evidence suggests that while crew pairing planning may not be the most dominant determinant of financial performance, it remains a critical component of airline cost management strategies. Airlines that leverage advanced crew scheduling technologies and optimization software can achieve greater operational efficiencies, thereby enhancing their financial sustainability.

4.8.3 Theme Three: Influence of Aircraft Route Planning on Return on Equity (ROE)

Aircraft route planning, which involves determining the optimal sequence of flights assigned to a particular aircraft, is a key operational decision that affects revenue generation and cost efficiency. In response to the question, *"In your opinion, does aircraft route planning influence the return on equity (ROE) of airlines?"* respondents unanimously agreed that efficient route planning is critical to maximizing profitability.

For example, respondents R5, R2, R1, and R8 emphasized:

"Aircraft route planning is very important as you have to understand which route has the highest passenger demand. This minimizes empty seats in the planes and thus increases net income, ultimately improving financial performance."

These findings are consistent with Wensveen (2018), who noted that optimizing aircraft route planning enables airlines to maximize aircraft utilization, minimize downtime, and allocate resources more effectively. Similarly, Williams (2017) found that airlines that strategically plan their routes based on market demand and revenue potential experience higher returns on equity due to improved yield management and reduced operational redundancies.

Further supporting this assertion, Özener et al. (2017) found that strategic aircraft route planning allows airlines to capitalize on high-demand markets, improving overall load factors and revenue per available seat mile (RASM). This research confirms that effective aircraft route planning not only increases revenue but also reduces operational bottlenecks, leading to greater financial stability.

Additionally, Huang (2021) highlighted that advanced aircraft route planning strategies, such as hub-and-spoke models and direct point-to-point operations, can significantly impact an airline's profitability. The findings of this study reinforce this perspective, as respondents emphasized the importance of minimizing turnaround times and reducing fuel consumption through optimized routing.

Thus, the study confirms that well-planned aircraft route planning enhances an airline's financial performance by improving asset utilization, reducing costs, and maximizing revenue generation. Airlines that leverage data analytics and forecasting models for route planning are better positioned to achieve sustained profitability.

4.8.4 Theme Four: Schedule Development Planning and Enhancement of Airline Profits

Flight schedule development planning is one of the most critical aspects of airline operational planning, as it directly influences demand, revenue, and cost efficiency. Respondents were asked, *"Does schedule development planning enhance airline profits?"* The responses overwhelmingly indicated that scheduling decisions play a pivotal role in financial performance.

For instance, respondents R1, R2, R6, and R8 stated:

"The way scheduling decisions are made is crucial, as aligning schedules with demand reduces losses and increases net income."

This perspective is well-supported in the literature. Osman et al. (2021) found that well-optimized flight schedules increase seat occupancy rates, improve resource utilization, and enhance profitability. By aligning flight schedules with peak demand periods, airlines can maximize ticket sales and revenue per available seat mile (RASM).

Moreover, Cook and Billig (2017) emphasized that precise schedule development planning minimizes operational disruptions, ensuring a balance between aircraft utilization and crew efficiency. Airlines that strategically plan their schedules to optimize aircraft turnaround times and minimize layovers achieve greater financial returns.

The findings from this study further support Chen et al. (2017), who found that airlines with flexible and demand-driven schedules generate higher revenue and maintain a competitive edge. Respondents in this study noted that schedule development planning decisions must factor in variables such as seasonality, passenger demand fluctuations, and operational constraints to maximize profitability.

Overall, the study confirms that flight schedule development planning is a fundamental driver of airline financial performance. Airlines that adopt technology-driven scheduling models, such as AI-

powered demand forecasting and dynamic scheduling, are more likely to achieve sustainable growth and profitability.

The thematic analysis of qualitative data provides valuable insights into the influence of operational planning decisions on airline financial performance. The findings corroborate existing literature, reinforcing the notion that fleet planning, crew pairing planning, aircraft route planning, and schedule development planning are critical determinants of profitability. By integrating strategic planning with advanced analytics and optimization techniques, airlines can enhance financial sustainability, improve asset utilization, and gain a competitive advantage in the dynamic aviation industry.

4.9 Chapter Summary

This chapter presented the findings and discussion based on the data collected through questionnaires and interviews. The study achieved a high response rate, ensuring reliable data for analysis. Demographic characteristics of respondents indicated diverse representation in terms of age, gender, education level, and years of experience, affirming the credibility of the responses.

The descriptive analysis highlighted that operational planning decisions significantly influence financial performance. Fleet planning was found to enhance efficiency and cost reduction, aircraft route planning maximized aircraft utilization and revenue generation, crew pairing planning helped reduce operational expenses, and schedule development planning played a key role in aligning flight operations with passenger demand.

The inferential analysis confirmed strong positive relationships between all four operational planning decisions and financial performance. Regression analysis established that schedule development planning and aircraft route planning had the highest impact, followed by fleet planning and crew pairing planning. These findings aligned with existing literature, reinforcing the importance of strategic planning in airline profitability.

Qualitative analysis provided deeper insights, with themes emerging around fleet decisions impacting profitability, crew pairing planning enhancing asset utilization, aircraft route planning optimizing revenue, and schedule development planning improving efficiency. The findings emphasized the need for airlines to adopt well-structured operational strategies to remain competitive and financially sustainable.

Overall, the chapter demonstrated that effective operational planning is critical for improving financial performance. The study underscored the importance of integrating efficient scheduling, fleet management, and crew utilization strategies to enhance airline profitability and long-term sustainability.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The main conclusions of the actual research are succinctly abridged in this part, which also makes inferences and addresses any potential ramifications. It ends with some suggestions and recommendations for additional research areas.

5.2 Summary

5.2.1 Influence of Fleet Planning on Financial Performance

The study sought to determine how fleet planning as an airline planning decision influences financial performance. The descriptive findings indicated that respondents agreed that fleet planning is a critical factor in operational efficiency. The mean scores for statements on fleet planning ranged from moderate to high, demonstrating that it enhances efficiency, reduces operating costs, minimizes spill costs, and increases revenue recapture. The findings underscored that the selection of fleet composition determines cost-effectiveness and operational sustainability.

The correlation analysis established a strong positive relationship between fleet planning and financial performance, with a Pearson correlation coefficient of 0.794, indicating a statistically significant and positive association. This result suggested that effective fleet planning directly

influences the financial outcomes of an airline, reinforcing the necessity for airlines to make informed fleet acquisition and management decisions.

Regression analysis further confirmed the influence of fleet planning on financial performance. The regression coefficient for fleet planning was 0.373, meaning that a unit increase in fleet planning would lead to a 37.3% improvement in financial performance. The significance value ($p = 0.001$) indicated a statistically significant impact. These findings aligned with existing literature, such as Renold et al. (2019), who argued that well-planned fleet operations optimize profitability by balancing aircraft size and operational needs.

Overall, the results suggested that effective fleet planning is essential for maintaining cost efficiency, reducing losses, and increasing profitability. Airlines that strategically manage their fleet size, composition, and utilization are more likely to achieve financial sustainability in an increasingly competitive aviation industry.

5.2.2 Influence of Aircraft Route Planning on Financial Performance

The second objective of the study was to assess how aircraft route planning decisions impact financial performance. Descriptive analysis showed that respondents strongly agreed that aircraft route planning is a fundamental aspect of airline operations. The mean scores for statements related to aircraft route planning were generally high, suggesting that it significantly contributes to operational efficiency, economic considerations, expected profitability, and aircraft utilization. The findings highlighted that proper route allocation minimizes empty seats, reduces operational inefficiencies, and enhances airline profitability.

The correlation analysis revealed a strong positive relationship between aircraft route planning and financial performance, with a Pearson correlation coefficient of 0.777. This result confirmed that optimizing route selection has a substantial impact on an airline's revenue generation and cost

efficiency. Airlines that design routes based on demand patterns, fuel efficiency, and competitive positioning are more likely to improve their financial performance.

Regression analysis further validated these findings, showing a regression coefficient of 0.482 for aircraft route planning, implying that a unit increase in effective route planning leads to a 48.2% increase in financial performance. The significance value ($p = 0.000$) demonstrated that aircraft route planning is a crucial predictor of financial success in the airline industry. The findings were consistent with the work of Wensveen (2018) and Williams (2017), who emphasized that airlines must design routes based on market demand to minimize operational costs and maximize revenue.

Overall, the study confirmed that aircraft route planning decisions play a vital role in financial performance. Airlines that implement optimized routing strategies enhance efficiency, reduce operational expenses, and achieve better profitability. The results emphasized the importance of integrating advanced data analytics and market research in route planning to maintain a competitive edge in the aviation sector.

5.2.3 Influence of Crew Pairing Planning on Financial Performance

The study also aimed to examine how crew pairing decisions impact financial performance. Descriptive findings indicated that respondents moderately agreed that crew pairing planning plays a significant role in minimizing operational costs. Mean scores for statements on crew pairing varied, with certain aspects like crew base allocation and flight assignment receiving higher agreement, while the impact of crew pairing on union fees was less pronounced. This suggested that while crew pairing planning contributes to cost reduction, its effect may not be as significant as other operational factors.

The correlation analysis demonstrated a moderately strong positive relationship between crew pairing planning and financial performance, with a Pearson correlation coefficient of 0.663. This finding indicated that well-structured crew pairing planning decisions lead to improved efficiency, lower

expenses, and better financial outcomes. The correlation was statistically significant, highlighting the necessity for airlines to implement optimal crew scheduling and assignment strategies.

Regression analysis further reinforced these findings, revealing a regression coefficient of 0.257, meaning that a unit increase in crew pairing efficiency results in a 25.7% improvement in financial performance. The significance value ($p = 0.000$) suggested that crew pairing planning has a meaningful but relatively lower impact compared to other operational planning decisions. The study's findings aligned with research by Chang et al. (2020), which indicated that efficient crew pairing planning reduces operational costs by 3% to 15% through optimized scheduling and resource allocation.

Overall, the study concluded that while crew pairing planning is essential for cost control and efficiency, its impact on financial performance is relatively moderate. Airlines must adopt sophisticated crew management systems that consider operational constraints, regulatory requirements, and employee satisfaction to maximize financial benefits.

5.2.4 Influence of Schedule Development Planning on Financial Performance

The final objective examined the effect of schedule development planning on financial performance. Descriptive findings revealed that respondents strongly agreed that schedule development planning influences key financial indicators. The mean scores for schedule-related statements were consistently high, indicating that flight scheduling plays a crucial role in revenue optimization, aircraft utilization, and operational efficiency. Respondents emphasized that strategic scheduling aligns airline operations with passenger demand, thereby minimizing losses and maximizing profitability.

The correlation analysis established a very strong positive relationship between schedule development planning and financial performance, with a Pearson correlation coefficient of 0.868.

This result suggested that effective scheduling significantly enhances an airline's financial position by ensuring optimal flight rotations, reducing delays, and improving passenger satisfaction.

Regression analysis further supported this conclusion, with a regression coefficient of 0.491, meaning that a unit increase in effective schedule development planning would lead to a 49.1% increase in financial performance. The significance value ($p = 0.000$) confirmed that schedule planning is a critical determinant of financial success. These findings aligned with research by Cook & Billig (2017) and Chege (2021), who found that well-planned schedules reduce operational inefficiencies, enhance customer experience, and drive revenue growth.

Overall, the study demonstrated that schedule development planning is a vital component of financial performance in the airline industry. Airlines that invest in advanced scheduling systems, demand forecasting, and real-time operational adjustments are better positioned to optimize profitability and maintain a competitive edge in the market.

The study's findings underscored the critical role of operational planning in enhancing airline financial performance. Fleet planning, aircraft route planning, crew pairing planning, and schedule development planning all had significant positive effects, with schedule development planning and aircraft routing having the most pronounced impact. These results highlighted the need for airlines to adopt data-driven decision-making processes, integrating technology and market analysis to refine their operational strategies.

From a theoretical perspective, the findings reinforced the applicability of strategic management and operational efficiency theories in the airline industry. The results aligned with previous research, affirming that structured operational planning improves cost efficiency, revenue generation, and overall financial sustainability.

From a managerial perspective, airline executives must prioritize fleet composition, optimize route planning, refine crew pairing mechanisms, and invest in intelligent scheduling tools to maximize profitability. The study also suggested that regulatory bodies should support airlines by promoting policies that enable operational flexibility and financial resilience.

In conclusion, the study provided empirical evidence that operational planning is a fundamental determinant of airline financial performance. By implementing effective operational strategies, airlines can navigate economic challenges, enhance efficiency, and achieve long-term financial sustainability.

5.3 Conclusion

The study concludes that operational planning plays a fundamental role in determining the financial performance of airlines. The findings from both quantitative and qualitative analyses confirm that airlines must adopt structured and data-driven operational strategies to achieve financial sustainability. The study assessed the effect of four key operational planning decisions—fleet planning, aircraft route planning, crew pairing planning, and schedule development planning—on the financial performance of airlines operating from Wilson Airport, Kenya. The conclusions drawn from descriptive statistics, correlation analysis, and regression modeling confirm a significant and positive relationship between operational planning and financial performance.

Firstly, the study concludes that fleeting decisions significantly influence airline financial performance. The findings indicate that effective fleet planning enhances operational efficiency, reduces unnecessary costs, and maximizes revenue generation. An optimal mix of aircraft types, considering factors such as capacity, fuel efficiency, and maintenance costs, contributes to improved financial outcomes. The strong correlation between fleet planning and financial performance suggests

that airlines that make informed decisions regarding fleet composition, aircraft utilization, and replacement strategies can maintain profitability even in volatile market conditions.

Secondly, the study confirms that aircraft route planning has a substantial effect on airline financial performance. The findings illustrate that well-planned route selection minimizes operational inefficiencies, maximizes passenger occupancy, and ensures better fuel utilization. Airlines that strategically allocate aircraft to high-demand routes, optimize flight frequencies, and adjust schedules based on market trends experience higher profitability. The study further establishes that airlines must consider economic and geographic factors, demand forecasting, and competition when designing route networks to sustain financial viability.

Thirdly, the study concludes that crew pairing planning decisions have a moderate but statistically significant impact on financial performance. While not as influential as fleet planning or route selection, crew pairing planning was found to be essential for cost control and operational efficiency. Well-structured crew schedules reduce accommodation and transit costs, minimize union fees, and optimize crew utilization. However, the financial impact of crew pairing is relatively lower compared to other operational planning decisions. The study underscores that airlines should adopt advanced crew scheduling software to minimize inefficiencies while ensuring regulatory compliance and employee well-being.

Lastly, the study establishes that schedule development planning is the most significant predictor of financial performance among the four operational planning decisions. The results demonstrate that strategic scheduling enhances aircraft utilization, reduces delays, improves passenger experience, and increases overall revenue. Flight scheduling must be aligned with passenger demand, airport slot availability, and operational constraints to achieve maximum profitability. Airlines that invest in real-

time scheduling systems and demand-driven scheduling adjustments are better positioned to compete in a dynamic aviation market.

The study concludes that operational planning decisions are critical determinants of airline financial performance. While all four operational decisions—fleet planning, aircraft route planning, crew pairing planning, and schedule development planning—were found to have a significant impact, schedule development planning and aircraft route planning exhibited the strongest influence on financial outcomes. This highlights the need for airlines to integrate strategic planning, data analytics, and technological advancements in their operational decision-making processes. Airlines operating in Kenya, particularly at Wilson Airport, should focus on optimizing fleet composition, enhancing route efficiency, improving crew allocation, and adopting intelligent scheduling systems to remain financially viable in an increasingly competitive industry.

Furthermore, the study concludes that a lack of effective operational planning is a major contributor to the financial instability of airlines. The financial struggles experienced by many airlines, as evidenced by the fluctuating profitability levels in the Kenyan aviation sector, are largely attributed to inefficient planning and decision-making processes. Airlines that fail to align their operations with market demand, cost efficiency, and competitive dynamics risk experiencing continued financial losses.

The study also highlights the importance of a data-driven approach to operational planning. The aviation industry is highly sensitive to external factors such as fuel price fluctuations, regulatory changes, and economic downturns. Therefore, airlines must embrace advanced data analytics, artificial intelligence, and machine learning techniques to enhance decision-making in fleet management, route optimization, crew scheduling, and flight planning. Integrating technology into operational planning will provide airlines with a competitive edge, ensuring long-term sustainability.

Additionally, the study underscores the need for policy and regulatory support to enhance airline financial performance. The findings suggest that the Kenyan government and regulatory agencies should implement policies that foster a favorable operating environment for airlines. This includes reducing excessive taxation, improving airport infrastructure, and facilitating open skies agreements to enhance airline competitiveness. A collaborative approach between airlines, policymakers, and industry stakeholders is necessary to promote financial stability and growth in the Kenyan aviation sector.

In summary, the study provides empirical evidence that operational planning is a crucial determinant of financial performance in the airline industry. By implementing well-structured fleet decisions, optimizing route networks, refining crew pairing strategies, and enhancing flight scheduling, airlines can improve profitability, operational efficiency, and overall sustainability. The study's findings contribute to the existing body of knowledge on airline financial management and provide practical insights for aviation managers, policymakers, and researchers interested in enhancing the financial performance of air carriers.

5.4 Recommendations

The findings of this study provide critical insights into the relationship between operational planning and financial performance in the airline industry. Based on the results, several recommendations are made to guide airline management, policymakers, and future researchers in improving operational planning strategies for better financial outcomes.

5.4.1 To the Management

For airline management, it is imperative to optimize fleet composition to enhance efficiency and reduce operational costs. Airlines should adopt data-driven fleet planning strategies that align with passenger demand, route profitability, and operational expenses. Investing in fuel-efficient aircraft,

standardizing fleet types to lower maintenance costs, and ensuring optimal fleet utilization will improve financial performance. Periodic reviews of fleet strategies should be conducted to align with emerging industry trends and technological advancements. Moreover, airlines should leverage advanced analytics and artificial intelligence in route optimization. This includes identifying profitable routes, adjusting flight frequencies based on seasonal demand, and strategically allocating aircraft to high-yield markets. Schedule development should be demand-driven to improve load factors and maximize revenue while maintaining service efficiency.

Crew pairing and scheduling should also be optimized using advanced management systems. The integration of technology in crew planning would help minimize costs associated with accommodation, transit, and standby crew. Investing in automated crew pairing software will allow airlines to balance operational efficiency with regulatory compliance and employee welfare. In addition, airlines should focus on dynamic scheduling that responds to market conditions in real time. A more flexible approach to scheduling, including adjusting flight frequencies based on passenger bookings and airport slot availability, would improve revenue generation and operational efficiency.

Furthermore, airlines must embrace digital transformation by investing in predictive analytics, artificial intelligence, and machine learning to enhance operational planning. Predictive models can improve decision-making in fleet assignment, route selection, and crew deployment, ultimately leading to better financial performance. Additionally, financial risk management should be strengthened to mitigate the impact of fluctuating fuel prices, economic downturns, and increasing competition. Airlines should develop comprehensive risk management frameworks that include cost control measures such as fuel hedging, partnerships with fuel suppliers, and the adoption of lean operational strategies.

5.4.2 To PolicyMakers

For policymakers, there is a need to enhance regulatory frameworks to support airline growth. The government, through aviation regulatory bodies, should streamline licensing requirements, reduce bureaucratic barriers, and ensure fair competition among domestic and international carriers. High taxation and regulatory fees have been identified as major challenges for airlines, and policymakers should consider revising taxation policies to reduce the financial burden on airlines. Incentives such as tax breaks on fuel purchases, airport usage discounts, and subsidies for domestic carriers could enhance airline competitiveness and long-term sustainability.

Furthermore, air service agreements should be strengthened to enhance market access and improve route profitability. The Kenyan government should actively engage in bilateral and multilateral agreements to increase airspace liberalization and expand the operational reach of local airlines. Investment in aviation infrastructure, including modernized terminals, efficient air traffic management systems, and improved fuel efficiency programs, should be prioritized to facilitate better airline operations. Enhancing Wilson Airport's infrastructure and upgrading regional airports would contribute to increased efficiency and competitiveness among local carriers. Additionally, given the increasing global focus on sustainability, regulatory bodies should promote policies that encourage airlines to adopt environmentally friendly operational practices. Incentives for carbon offset programs, investment in fuel-efficient aircraft, and adoption of sustainable aviation fuel should be explored to align the industry with global environmental standards.

5.4.3 To Further Research

In the realm of academic research, future studies should explore how operational planning affects financial performance in different airline categories, including charter airlines, low-cost carriers, and cargo airlines. This would provide a more comprehensive understanding of how different airline models approach operational efficiency. Additionally, further research should investigate the role of

emerging technologies, such as artificial intelligence, blockchain, and big data analytics, in airline operational planning. Understanding the impact of digital transformation on decision-making processes will be crucial for the future sustainability of the aviation industry.

Further studies should also examine how macroeconomic and political factors influence airline financial outcomes. While this study focused on internal operational planning, future research could assess how external factors, such as economic instability, fuel price volatility, and global political dynamics, impact financial performance. Additionally, exploring the role of customer satisfaction in airline profitability could provide new insights into the intersection between operational planning and passenger experience. Customer-centric strategies, including loyalty programs and service quality improvements, could be integrated into operational planning to enhance airline competitiveness.

Finally, a longitudinal study assessing the long-term effects of operational planning decisions on financial stability would be beneficial. Such a study would track financial performance over time, helping airlines refine strategic planning approaches based on historical financial data. This would provide airlines with valuable insights into how long-term planning influences profitability and overall industry sustainability.

By implementing these recommendations, airlines can enhance their financial performance through strategic operational planning. Effective decision-making in fleet management, route optimization, crew scheduling, and financial risk management will lead to improved operational efficiency and profitability. Policymakers must create an enabling environment through regulatory reforms, infrastructure investment, and sustainability incentives. Additionally, continued research into evolving industry trends will contribute to more refined strategies for operational planning and financial sustainability in the aviation sector.

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APPENDICES

Appendix I: Consent Form

I volunteer take part in a research project that is being carried out by **SAMUEL KAGOTHO** from ***Mount Kenya University*** on "Influence of Operational Planning on Financial Performance of Airlines with Base Operations in Wilson Airport in Kenya". I am aware that the objective of this project is to gather information for academic work and that:

1. My partaking in this initiative is voluntary. I comprehend that there will be no monetary reward of any form for my engagement. If I cease participating or withdraw at any moment, I am not going to be penalized.

2. I possess the right to refrain to respond to any questions or to stop participating if I am uncomfortable in any way while taking part.

3. I recognize that the study's investigator intends to safeguard my confidentiality as a study participant and refrain from using the data from the questionnaires for identifying me individually throughout the reports.

4. I've read and comprehended the clarification that was given. All of my inquiries have been satisfactorily addressed, and I voluntarily agree to participate in this research.

5. I have been given a copy of this acceptance form.

_____

My Signature Date

_____

My Printed Name Signature of the Investigator

For further information, please contact: **SAMUEL KAGOTHO KURIA**

Tel: 0723358687, Email: samuelkagotho@gmail.com

Appendix II: Questionnaire for Employees of Airlines

Please answer the following questions to the best of your knowledge. Tick where necessary and fill where applicable.

Section A: Demographic Characteristics

1. Age of the respondent

   18-30 years [ ] 31-35 years [ ] 36-40 years [ ] 41-45 years [ ]

   Over 46 years [ ]

2. Sex of the respondent.

   Male [ ] Female [ ] Others [ ]

3. Education level

   Certificate [ ] Diploma [ ] Degree [ ] Others [ ]

4. For how long have you worked with or been involved with the airline?

0-3 years [ ] 4-6 years [ ] 7-10 years [ ] Over 10 years [ ]

Section B: Specific Information

Key **SA-** Strongly Agree, **A**- Agree, **UD-** Undecided, **D-** Disagree, **SD-** Strongly Disagree

1. **To what extent do you agree with the following statements on airline fleet planning?**

Statement	**SA**	**A**	**UD**	**D**	**SD**
Fleet planning determines fleet combination hence increasing efficiency.					
Fleet planning reduces operation cost					
Fleet planning reduces spill cost					
Fleet planning increases recapturing of revenue					
Fleet planning determines capacity for specific aircraft assignment increasing efficiency.					

2. **To what extent do you agree with the following statements on aircraft route planning?**

Statement	**SA**	**A**	**UD**	**D**	**SD**

Aircraft route planning determines sequence of flights of an aircraft increasing efficiency					
Aircraft route planning influences the period of the aircraft in the checks					
Aircraft route planning determines economic considerations and expected profitability.					
Aircraft route planning determines route given to an aircraft hence maximum utilization.					
Aircraft route planning determines the maintenance feasible rotation					

3. **To what extent do you agree with the following statements on airline's crew pairing planning?**

Statement	**SA**	**A**	**UD**	**D**	**SD**
Crew pairing planning determines the type of crew assigned to each flight and thus minimize expenses					
Crew pairing planning reduce expenses of accommodation by assigning crew basing on their origins or destination of the flight					
Crew pairing planning determines the crew base where the crew is stationed					
Crew pairing planning influences reduction of union fees					

Crew pairing planning determines the number of days of the trip hence utilizing crew efficiently.					

4. To what extent do you agree with the following statements on airline's schedule development planning?

Statement	**SA**	**A**	**UD**	**D**	**SD**
Airline schedule development planning influences aircraft rotational planning of the airline enhancing efficiency					

Airline schedule development planning influences the flight schedule departure of each aircraft thus attracting as many passengers as possible.					
It determines the time table development of the airline creating efficiency					
It determines the frequency of flights on the selected routes thus increasing revenue					
It influences the type of aircraft to be used for each departure time for maximum utilization.					

Appendix III: Interview Guide: Head of Airlines

1. How do you think fleet planning as an airline planning decision influences profit of airline's Explain?
2. Do you think crew pairing planning enhances return on assets of an airline?

3. In your opinion does Aircraft route planning influence the return on equity of airline?
4. Do schedule development planning influence aircraft rotational planning of the airline? Does that enhance profit of airline?

Appendix IV: ERC Clearance Letter

Mount Kenya University

REF: **MKU/ISERC/3733** Date: 21 May 2024
TO: **SAMUEL KAGOTHO KURIA**
REG: **MSCPM/2021/80637**

Dear Sir/Madam,

RE: INFLUENCE OF OPERATIONAL PLANNING ON FINANCIAL PERFORMANCE OF AIRLINES WITH BASE OPERATIONS IN WILSON AIRPORT IN KENYA

This is to inform you that **Mount Kenya University** has reviewed and approved your above research proposal. Your application approval number is **2777.** The approval period is **21/05/2024 - 20/05/2025.**

This approval is subject to compliance with the following requirements;

i. Only approved documents including informed consents, study instruments, MTA will be used
ii. All changes including amendments, deviations and violations are submitted for review and approval by **Mount Kenya University**
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to **Mount Kenya University** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affect the safety or welfare of study participants and others or affect the integrity of the research must be reported to **Mount Kenya University** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal
vii. Submission of an executive summary report within 90 days upon completion of the study to **Mount Kenya University**

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely,

Dr. Alfred Owino, PhD
Chairman, Mount Kenya University ISERC

Appendix V: Introductory Letter

Mount Kenya University

DIRECTORATE OF GRADUATE STUDIES

MSCPM/2021/80637

30th March, 2024

National Commission for Science Technology & Innovation (NACOSTI)
Off Waiyaki Way, Upper Kabete,
P.O Box 30623- 00100
NAIROBI, KENYA

Dear Sir/Madam,

RE: SAMUEL KAGOTHO KURIA– REGISTRATION NO. MSCPM/2021/80637

The purpose of this letter is to introduce the above named student who is pursuing **Master of Science in Project Management** in the **Department of Management** in the school of **Business and Economics.**

The title of the research is **"Influence of Operational Planning on Financial Performance of Airlines with Base Operations in Wilson Airport in Kenya."** It has been cleared by the University's Ethics Review Committee (Certificate attached) and now has to proceed to the field to collect data between **June, 2024 and August, 2024.**

Any assistance accorded to the student will be highly appreciated.

Thank you.

Mount Kenya University
P.O. Box 342 - 01000, THIKA
Office of the Director
Graduate Studies

Dr. Samuel M. Kareriga, Ph.D
Director, Graduate Studies
Enc.

Appendix VI: NACOSTI Authorization Letter

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **585703**

Date of Issue: **11/June/2024**

RESEARCH LICENSE

This is to Certify that Mr.. Samuel Kagotho Kuria of Mount Kenya University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: INFLUENCE OF OPERATIONAL PLANNING ON FINANCIAL PERFORMANCE OF AIRLINES WITH BASE OPERATIONS IN WILSON AIRPORT IN KENYA for the period ending : 11/June/2025.

License No: **NACOSTI/P/24/36642**

585703

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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Appendix VII: Turnitin Report

Samuel Kagotho

Samuel's Project Report

Thesis
Master
Mount Kenya University

Document Details

Submission ID
trn:oid:::1:3086328829

Submission Date
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File Name
Samuel_s_Project_Report_1.1.docx

File Size
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101 Pages

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Appendix VIII: Field entry /Research Authorization

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR
SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **585703**

Date of Issue: **11/June/2024**

RESEARCH LICENSE

This is to Certify that Mr.. Samuel Kagotho Kuria of Mount Kenya University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: INFLUENCE OF OPERATIONAL PLANNING ON FINANCIAL PERFORMANCE OF AIRLINES WITH BASE OPERATIONS IN WILSON AIRPORT IN KENYA for the period ending : 11/June/2025.

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585703

Applicant Identification Number

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NAIROBI

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Wilson Airport, Langata Rd
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Nairobi

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Appendix IX: Research site map