Challenges Faced by Selected Commercial Air Operator Companies in Conducting Business in Zambia

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Abstract

This study considered the challenges faced by the selected Air Operator Certificate (AOC) holders in Zambia in order to establish the reasons for the collapse of most indigenous air operators since 1994. After Zambia Airways (In Liquidation) was closed by the MMD government in 1994, the Zambian aviation sector has continued to operate with policy discrepancies, resulting in economic burdens, costly compliance fees, an unfavorable airport charges/fees system, costly navigation fees, high aviation fuel prices, and unpredictable commercial air operator inputs. The Zambian aviation industry's low capacity and high local operating costs make it hard to compete with international commercial air carriers. Commercial air operators have also struggled financially because of the COVID-19 pandemic and disease management techniques (Amankwah-Amoah, 2020; Rosalsky, 2020). Thus, this study examined the challenges faced by specific air operators to offer the Government of the Republic of Zambia (GRZ), key aviation stakeholders, and air operators possible solutions to the challenges on business barriers that impede commercial air operator growth. The researcher used primary data sources from the Civil Aviation Authority (CAA), Proflight Zambia, Royal Air Charters Ltd while secondary data came from peer-reviewed journals, academic publications, books, and internet sources on challenges facing local and international commercial air operations and international civil aviation management. A Qualitative data analysis (What, How, Why) using a Case Study structure and a questionnaire for primary data sources and secondary data extraction followed Grounded Theory method (GTM). The study suggested changing Zambia's policy for hiring aviation technocrats and advisers at the Ministry of Transport such as Transport Director (Knowledge on Aviation Industry vital), Assistant Director Aviation and Water Development(Aviation Background), and Principal Aviation Officer (Aviation Background)to prioritize hiring ex-CAA/AOC holders staff with aviation experience such as former airline pilots, engineers, quality managers, and second option to ex-air traffic controllers. The study revealed that AOC holders's management teams satisfied ZCARs' aviation standards except for shortcomings in practical business management and related economic skills, advising that aviators obtain further training in business management courses as a qualifying criterion. In the CAA's certification requirements for AOC holders, there existed compliance gaps. The study found that AOC holders considered payable CAA fees and levies cost prohibitive. With a projected growth in local Approved Training Organizations (ATOs), Approved Maintenance Organizations (AMOs), and Maintenance Repair and Overhaul

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(MRO) facilities set up, the CAA needed more inspectors to boost its inspection capacity. The researcher discovered that high operational costs compromise AOC holder's business development due to costly economic input factors.

Keywords: Air Operator Certificate (AOC) Holders; Specific Air Operators; Aviation Industry; Challenges; Zambia Airways (In Liquidation) shutdown in 1994

1.1 INTRODUCTION AND BACKGROUND

The MMD government shut down Zambia Airways in 1994 (in-liquidation) (Anon., 1994), and since then, private companies have attempted to fill the void left by demise of the national carrier in liquidation. However, the majority of these attempts have failed, and as a result, domestic commercial air transport and tourism have experienced a significant decline(Szeftel, 2000) . Zambian air operators exhibited concerns about the long-term sustainability of the development of commercial aircraft operations enterprises following the Zambian government's failure to adopt financial exemptions to help current AOC holders survive the COVID-19 epidemic. The study further encouraged the Zambian airlines to adopt modern aviation business technology, current flight operations software, and routinely update their present technology in order to stay competitive. Rapid technological advancement has a negative impact on the profitability of air operator companies as adoption is costly in training and required maintenance fees which result in higher operating costs and lower productivity.

In light of the foregoing the researcher reveals that the local air operators are purpose driven to strive through existing challenges affecting growth, high-quality service, and required business innovation. The researcher reviewed that immediately independence was gained on October 24th, 1964, the United National Independence Party (UNIP) administration created a civil aviation management plan that was designed and backed by strong government aviation policies. Evidence provided by the president of the Zambian Professional Pilots Association (Sakala, A 2023, pers.com, 20 January) and another retired pilot (Sikazwe, V 2023, pers.com, 20 January) suggests that the government controlled the difficult process of deciding the direction of Zambia's civil aviation development. Valentine Shula Musakanya, the nation's first Secretary to the Cabinet, was acknowledged as one of the country's pioneers on civil aviation development and that he provided critical policy inputs. After the colonial government joint government venture, Central African Airways (Rhodesia and Nyasaland) went out of business in 1967, the UNIP government created Zambia Airways (In-Liquidation), which grew into a sizable state-run business. The Italian government working with Alitalia helped Zambia Airways (In-Liquidation) to become a successful commercial airline whose goal focused on serving the relevant African regions and international locations. Consequently, the Zambian aviation industry growth contributed to national development in service provision, transport and tourism sector.

The study showed that in the early years of UNIP, Zambia Air Services Training Institute (ZASTI) provided pilot training, Zambia Flying Doctor Service (ZFDS) provided medical services and air ambulance services, Mines Air services provided mining air transport services, Government chartered flights were provided by Government Communication Flight(GCF) and Zambia Airways(In-Liquidation) managed the National Air Charter for Charter/VVIP flights. The study reveals that Zambia Export Growers Association, and other private goods forwarding businesses flourished during the early years of the country's independence. However, the decline of the aviation sector that followed after 1994 was initiated by the new policies of the Movement for Multiparty Democracy (MMD) and later the Patriotic Front(PF) Governments both having diverse policies from the UNIP government's socialist policies that were based on mixed/interventionist economic policies that supported aviation growth. Nonetheless, the study showed that Zambia Airways (In-liquidation) was afflicted by corporate and financial incompetence between 1989 and 1994, which contributed

to its collapse. Political backing had been insufficient for the airline to survive, and from December 1994 onwards, a thorough evaluation of the nation's aviation operator business enterprises revealed a decline in the quality of air service delivery.

Czerny and Lang (2019), however, assert that a shift from public to private company ownership may achieve distributional, financial, and efficiency goals (Vickers and Yarrow, 1991). These goals are related in that they may have different effects on businesses' efficiency in comparison to public ownership depending on whether they operate in a monopolistic or competitive environment. In a competitive economy, the efficiency benefits of privatization may be restricted (Vickers and Yarrow, 1991). Both the liberalization of the aviation markets and the privatization of airlines took place at the same time. Local ownerships are generally involved in private ownerships of airlines since national airline setup regime protections and limits frequently prevent cross-border airline investment (Walulik, 2016).

The aforementioned emphasizes the several challenges that the chosen Zambian commercial air operators faced, including shifting tax laws, high maintenance expenses, high compliance fees, high fixed costs, and expensive and fluctuating fuel prices. The study focused on how AOC holders could identify, foresee, and involve government regulatory bodies in problem-solving, as well as how collaborative stakeholder efforts to address these issues would support Zambian air carriers' long-term survival. Nearly every aviation firm used virtual meetings as a corrective solution in response to international health regulations as a result of the COVID-19 and globalization, which both had an equal impact on air operator earnings (Zhou, Dzingirai, Hove, Chitata et al., 2022). The Covid-19 epidemic has caused a sharp decline in passenger traffic since early 2020, driving up operational expenses and therefore driving up both air fares and aircraft hire or charter rates. These difficulties have led to a decline in profitability for the Zambian air operators, mainly owing to high operational expenses correlated with low revenues and unsupportable marginal costs.

1.4 Statement of The Problem

The selected Zambian commercial air operators faced many business challenges in Zambia, including variations in airport charges, high maintenance costs, high compliance fees, high fixed costs, and costly and variable fuel prices added to the list of concerns for consideration. These aviation input issues had challenged budgets and cash plans, there by affecting the selected commercial air operators's marginal costs. Therefore, the study sought to evoke a discussion around these challenges in order to improve the status quo.

1.5 Main Objective

The main objective of the study was to examine the country's aviation policy in order to establish the challenges faced by selected Commercial Air Operator Companies in conducting business in Zambia.

1.6 Specific Objectives

The specific objectives of the study were as follows:

i. Examine the gaps in the country's potential human resource base as well as the existing criteria for Government aviation technocrats, minimum applicable Zambian standards (ZCARs) on essential AOC holder management qualifications and the existing aviation management gaps.
ii. Assess the selected AOC holder concerns on aviation compliance requirements in Zambia.
iii. Analyze how the selected AOC holders are impacted by the current applicable economic inputs that directly affect the aviation industry operations.
iv. Analyze how the selected AOC holders are managing training costs and evaluate the existing gaps in local aviation training.
v. Evaluate the existing local aviation technical support and infrastructure as well as how it affects the selected AOC holder costs.
vi. Provide Recommendations on all of the above.

1.6 Research Questions

The following were the research questioning context guidelines that assisted the researcher to remain within the topic area and also ensuring successful interviews:

i. What are the gaps relating to the country's potential human resource base, the existing criteria for Government aviation technocrats, minimum applicable Zambian standards (ZCARs) on essential AOC holder management qualifications and the existing aviation management?
ii. What are the concerns of selected AOC holders on aviation compliance requirements in Zambia?
iii. What is the impact of the current applicable economic inputs that directly affect the aviation industry operations. on selected AOC holders?
iv. How are the selected AOC holders managing training costs?
v. What are the existing gaps in local aviation training?
vi. How do the existing local aviation technical support and infrastructure affect the selected AOC holder costs?

1.7 Significance of the Study

The results of this study may establish solutions to the challenges faced in the aviation sector and assist in facilitating successful civil aviation management in Zambia.

1.8 Limitations of the Research

Due to concerns about privacy, a few respondents were reluctant to volunteer information. However, this was managed by reassuring them that the obtained data would be managed with the utmost discretion and that only the researcher would have access to the information provided.

2. LITERATURE REVIEW

2.1 World Civil Aviation Management

According to Barnhart, (2003) stressing on the importance of operational research (OR) in air transport management discusses airline scheduling, routing, and crew assignment. This setting is well-suited for large-scale, discrete optimization and has driven methodological and computational improvements in OR throughout the years. The research includes overbooking, aircraft leg yield management, and network income maximization. Combining stochastic and optimization models OR has increased airline revenues since the late 1980s. Revenue management is a competitive industry for airlines.

In affirmation to the above and considering a diverse context but assuming analogical deduction from a study on South Korean air carrier competition, Ko, (2016) emphasized the use of game theory to analyze the management decisions made by three different types of airlines operating in a highly competitive air transport market: a full-service airline, a low-cost subsidiary of that airline, and a competing low-cost airline. Every airline is seen as a competitor that sets its own fares, schedules its flights, and determines the number of aircraft to maintain on a given route in order to maximize its profit. The flight demand function accounts for demand leakages across airlines according to the methodologies used by each airline. This study provides managerial insights applicable to the competitive air transport business by using a number of game scenarios that mimic real-world factors.

In spite of the above, on a different strategy in air transport management, according to Bråthen, (2012), remote areas rely heavily on-air travel. They enable efficient use of people and natural resources and affect resource allocation, value added, and revenue. The research discusses AOC holders' contributions to growth in air travel and identifies aspects that might be addressed to boost regional economic growth. It is based on a literature study and (European Aviation Safety Agency) EASA and Public Service Obligations PSO program experiences. The subject of air transport supply in regions is confined to circumstances when third-party engagement is needed to make the services profitable. Most typically in Europe, national or municipal governments provide subsidies to national airlines. The need for subsidies, air prices, and competitive bidding under Public Service Obligation should be adequately addressed to make the regional air transport system a

sustainable economic development factor. Complex aspects of subsidies need further study to fully understand.

Nonetheless, examining how Ryanair and Aer Lingus reacted to deregulation in Europe, Kangis, (2003) reveals important contrasts for strategists. Published sources and conversations with airline executives provided the data. Aer Lingus's exclusive market and smooth service exposed them to worldwide competition, resulting in increased expenses and reduced financial returns. Ryanair's no-frills attitude has permitted cheap costs and helped entice new customers on routes formerly served by other means. A study of these differing answers shows managers should challenge theory and traditional knowledge to drive action.

2.2 African Economic Governance

From the foregoing, commercial air operator businesses are required to operate in an atmosphere that is favourable to their success within the civil aviation industry. During the 1950s and 1960s, when many African governments attained independence from their respective colonial administrations (Roemer, 1982; Talton, 2012), economic policies differed by country. The bulk of these newly independent governments built administrative systems and national philosophies that were neither widely distributed nor well comprehended by their citizens. The majority of new African nations' Presidents set the tone for either one or combination of the following philosophies and economic policies:

a) Traditional/Market Economic System
b) Command/Socialist Economic System
c) Government intervention in the economy
d) Mixed Economic System

The economic governance of Zambia was inherited from a capitalist-style colonial administration which ended about 1972 thereafter, from 1973 was superseded by a socialist-style/government interventionism and a return to a free-market economy by the Movement for Multi-Party Democracy (MMD) government in 1991.

2.3 African Aviation Policy Reviews

The International Civil Aviation Organization (ICAO) is responsible for regulating civil aviation on a global scale. The African Civil Aviation Commission (AFCAC) is a regional specialized agency of the African Union (AU) charged with advancing civil aviation throughout Africa. The Yamoussoukro Decision (YD) was signed in 1999 to gradually abolish all non-physical restrictions associated with the granting of traffic rights, such as fifth traffic rights, aircraft capacity, tariff regulation, airline identification, and air freight operations. The implementation of the Yamoussoukro Decision has resulted in an increase in frequencies, air traffic and aircraft movements, as well as an increase in competition. However, implementation has been imperfect due to the lack of institutional and legal structures necessary for the execution of the Yamoussoukro Decision.

African nations have caused aviation industries to suffer failures due to a lack of effective tactics tailored to their specific needs, lack of coordination between the policies of the several ministries that govern the aviation sector, and a lack of authority for parastatals to make decisions to boost throughput. The International Civil Aviation Organization (ICAO) is tasked with worldwide regulatory responsibilities in the sphere of civil aviation, while the African Civil Aviation Commission (AFCAC) is the regional specialized agency of the African Union (AU) responsible for the development of civil aviation in Africa. At its fifteenth Plenary Session, AFCAC attempted to confront reality by addressing the main challenges which may influence the African States in the new century in achieving success as a competitive force in the global civil aviation industry. The Yamoussoukro Declaration is the core postulate of African civil aviation, and AFCAC has committed to play a more prominent role in its implementation. However, there are issues in Kenya that complicate its implementation, such as staff competence, lack of suitable institutions, and inflexible laws.

To speed up the liberalization of the air transport business, the Kenyan Civil Aviation Authority (KCAA) and the Ministry of Transportation should quickly develop and implement regulations and guidelines to liberate Kenyan air travel. Airline partnerships are also advocated to help them compete against international carriers

in a liberalized market. SADC has not implemented the Yamoussoukro Decision, which is binding on its member states, but has recognized its goal of liberalizing air travel. Agreements between SADC nations and other African nations follow a similar structure, but airlines have made little effort to increase efficiency or lower costs. In 2013, Zambia and South Africa inked an air service agreement that allowed for unrestricted frequencies and enabled intra-African aviation routes the freedom of transit.

The Yamoussoukro Decision's competition regulation clause was ruled insufficient, leading to worries and distrust among struggling airlines. On liberalized African markets, some airlines resort to methods to achieve dominant positions, such as alliances, co-ops, or partnerships. Despite efforts to enhance efficiency, less than 2% of the world's aviation passenger per kilometer are African. Air connectivity is linked to sub-Saharan Africa's commerce movements, but international efforts to expand aviation markets have not been successful.

2.4 Reviews on Zambian Civil Aviation

The literature dearth is a serious concern on Zambian civil aviation but regardless, there were reviews included in the study sourced from print media and internet domains from different credible authors/publishers that researcher considered relevant in contextualizing as applicable on local aviation studies.

A study according to Borchert, Gootiiz, Goswami & Mattoo, (2012), reveals that Zambia's situation is significant since it is part of a regional accord that nominally liberalized air transport and is one of the few nations in the mid-1990s to have authorized the liquidation of its loss-making national airline. The implementation of liberalization up to the Fifth Freedom in the Africa Union was agreed upon in the 2002 Yamoussoukro Decision (YD), which became legally obligatory. Years later, however, the Agreement has had little influence on Zambia and its neighbors. In light of YD's failure, the Common Market for Eastern and Southern Africa (COMESA) resolved to liberalize air transportation.

Considering the above scenario, it was seen that somehow a change in government aviation policy and the collapse of Zambia Airways (In-Liquidation) (Anon., 1994) in 1994 were related. Although nascent small and medium-sized air operator businesses were successfully established, there existed a relationship gap between key operational management, the airline shareholders and the regulatory agencies. To make matters worse, without meaningful government incentives, complex regulatory policies and a difficult economic environment, most of these firms had a difficult time competing against their bigger foreign competitors in the aviation sector. The aviation environment was pernicious that small and medium-sized air operator businesses were having tougher times competing against their bigger foreign competitors in the aviation sector. As a direct result of this, many of these locally established air operator firms were forced to cease their operations.

In view of the foregoing, contrary to existing policy in Zambia, according to Schlumberger, (2007) emphasizing on the point above that an analysis of the Zambian international accords, international air transport is still relied on Bilateral Air Service Agreements (BASA). that are highly restricted Only eight of the 72 BASAs signed by the Government of the Republic of Zambia (GRZ) during the previous several years are presently in operation. As part of a Bilateral Agreement Service Agreement with South Africa, transportation between the five city pairs was approved. Since they were recently allocated to a low-cost carrier operating under a Zambian air operator license, these traffic rights have only been partly used. Both Zambia and South Africa have rejected freedoms of the air requests via Lusaka into Johannesburg for other nations, including Egypt, Libya, Ethiopia, and Nigeria. Although this position has been reversed, Zambia had in the recent past turned down a Kenyan proposal to fly from Nairobi to Lusaka and then on to Harare in 2005.

According to Sylva, (2021) on Sub-Saharan Africa challenges, using the Nigerian context stressed that the unavailability of commercial simulators requires airlines to spend at least 16 million USD yearly on pilot simulator training. The industry lacks Maintenance, Repair and Overhaul (MRO) hangers. The lack of an MRO shortens most Commercial airline aircraft lifespans to about 10 years. More than 70% of the country's aircraft are older than 10 years. This situation increases maintenance costs, fuel consumption, pollution, downtime, and safety/reliability.

The foregoing opens up debate on the aviation industry in Zambia, which has several obstacles that affect commercial air carriers' daily operations. Foreign airlines (Ethiopian Airlines, Kenya Airways, Emirates Airlines, Qatar Airways, South African Airways, Airlink, Rwanda Air) have dominated the comparative and competitive advantage on Zambian international travel, and some of these foreign air operators are in most cases competing on the Lusaka -Johannesburg sector against the Zambian airlines (Proflight Zambia and Royal Air Charters *trading* as Royal Zambian Airlines). Ageing aircraft are another reason Zambian AOC holder need to update to remain *relevant-competitive.*

Therefore, from the above, it is getting more difficult for the smaller Zambian air operator business to continue operations as a result of the fierce competition in the industry as well as unjust business environment.

2.6 Impact of Covid 19 On Zambia

Mudenda, Chileshe, Mukosha, Hikaambo et al (2022) indicated that Zambia has had three waves of COVID-19, with the third being the deadliest. Zambia responded successfully to all three pandemics with international health partnership assistant. Zambia embraced World Health Organization (WHO) prevention strategies that include hand cleanliness, masks in public, physical separation, avoiding crowded venues, and staying home. Enhanced COVID-19 monitoring led to early case detection.

Amankwah, Amoah, Khan, & wood (2020) note that the Covid-19 pandemic has produced a wave of small and significant corporate failures not just in wealthy nations like the US and UK, but also across the developing globe. As a direct result of the COVID19 outbreak, the aviation sector is facing enormous challenges, which have had detrimental financial effects on commercial air carriers throughout the world.

The COVID-19 pandemic has harmed the aviation sector because of travel restrictions and flight cancellations (Roy, 2020). Lack of air traffic and revenue loss have slowed the aviation sector and airports. ACI World expected a 2 billion passenger drop in the second quarter of 2020 and 4.6 billion for the full year.

In view of the above, COVID-19 interruptions may last longer than the emergency, warn Abate, Christidis, and Purwanto (2020). Risk aversion and social distance may impact airline demand. Demand, supply, investment, and innovation are affected by recessions. Several airlines, airports, and aviation-related enterprises have lost revenue since mid-March 2020, creating concerns about their financial health and ability to restore services. Many businesses need government subsidies, lowering local and global competitiveness.

Additionally, due to severe financial consequences or expanding market concentration, air travel shall not return soon. (Abate, Christidis, Purwanto, 2020) Unprofitable routes and airlines may vanish until market circumstances improve. Government aid improves connection. Big markets with considerable government financing may maintain connections better than smaller ones in less-developed countries. Government subsidies to national airlines may produce international air connectivity imbalances. After COVID-19, linkage and competitiveness are problems. Government help may promote aviation.

Reorienting public policy after the pandemic may reduce the impact of climate change and environmental measures on the air transport industry before the crisis. The future of aviation depends on all levels of government and public bodies, notably transport projects. Post-pandemic aviation planning may incorporate sustainability. Supporting policy-driven technological and operational paradigms can help air transport operators in the long-term. Nationalizing carriers can assist achieve social and environmental goals (Abate, Christidis, and Purwanto,2020).

As illustrated by the global reduction in travel and tourism, Zambian commercial aviation operator problems include the Covid-19 epidemic.

2.7 African States Policy Reviews

The researcher also acknowledged the success of policies in a different African context according to Asefa, (2013), Ethiopian Airlines bought five Bombardier Q400 turboprop trainers. The ET Group Aviation school has full-scale simulation. According to Ethiopian Airlines 2010/2011 Annual Report (p. 10), establishing cooperation initiatives with learning institutions was one of the year's primary goals. Ministry of Education

(MoE) and Ministry of Defense (MoD) supported the initiative. The Air Force training facility had four groups of Aircraft Maintenance Technicians (AMT) trainees. The project with MoE was successful, and the curriculum for Technician, Cabin Crew, and Customer Service were completed and sent to MoE for certification. The program was scheduled to begin in September 2011. As part of vision 2025's strategic direction, important collaboration areas were identified and an MoU was signed to institutionalize the partnerships and ensure continuity. To aid cabin crew, customer service agent, and other recruiting, 10 regional and 14 preparatory high schools in Addis Ababa provided student data.

2.8 Contrasting with foreign Air Operators

The Zambian AOC holders operating within the SADC regional market provided a wide range of goods and services that seemed to be comparable in size and complexity, but their capacity differed, despite the fact that foreign air operators still have a capacity advantage. One of the most crucial characteristics that foreign airlines enjoy on a daily basis is a large fleet of modern aircraft. Superior aircraft used by foreign air operators provided the international traveller with the quality and capacity that they demand.

However, in spite of the above, Tran (2018), argues that to survive, airlines should build brand recognition and consider 12 factors when selecting passengers. Punctuality, superior in-flight service, superior aircraft, comfortable seats, clean cabins, chairs, and washrooms, decent food and drinks, superior first class, superior business class, efficient reservation systems, pricing, efficient check-in service, and appealing frequent flyer programs. Abeyratne (1998) also reveals that at least seven of these criteria rely on aircraft quality and it is very unlikely that ageing aircraft can be related to efficiency and punctuality. The flight schedule of a small airline with a modest fleet would be thrown into disarray if one aircraft were grounded for maintenance or repair, considers the aircraft quality to be one of the important requirements of the operation. Disrupted connections would strand travelers. Such an occurrence of disrupted service is likely to damage the airline's image. No amount of in-flight service can compensate for a six-hour delay at a new airport terminal. Any airline should remove one of its most burdensome infrastructure constraints (Abeyratne,1998).

In explaining further on smaller air carrier’s survival complexities in high competition environment, Tran, (2018) stresses that the low-cost carriers operating in the US market are adversely affected due to competition prevailing in the market. The direct impact of competition is on market share and revenue level where companies are not able to operate as per their real need. Sometimes, the challenge associated with high competition is unmanageable by the companies and due to this reason, they have to shut down their operations.

Furthermore, according to Choi, Lee &Olson, (2015), this is because the smaller firms already have a harder time surviving in the market. Competition as one of the hurdles can only be overcome if firms provide a unique service, which is often one of the primary reasons for the market share success of aviation companies.

2.9 Changes in Aviation Fuel Prices

High jet fuel prices in Zambia's aviation sector were squeezing smaller enterprises operational costs, making sustainability difficult as per example in Table 1.

According to inhibiting policy reports, jet fuel costs in Lusaka are almost 50 percent more than in surrounding nations, which is a policy factor that hinders Zambia's aviation connectivity (Schlumberger 2007, p. 192).

A concern to note according to Bilotkach, Gaggero, and Piga (2015), the airline industry may also have problems connected to the volatility of the price of fuel. This may have a detrimental influence on the profitability of airlines that are now functioning in the market. Businesses stand to gain significant profits from a decline in the price of aviation fuel, which in turn enables nonprofit organizations to collect the funds they need.

Sibdari, Mohammadian & Pyke (2018) also follow on the questions of Jet fuel effects on operational cost of airlines and reveal that having analyzed seven United States based major airlines as capacity choices using publicly accessible statistics, and their link to three exogenous parameters (flight frequency, aircraft size, load

factor) were examined (fuel cost, total passenger demand, and unemployment rate). Smaller aircraft and more frequent flights are connected with increasing passenger demand, whereas bigger aircraft and less frequent flights are associated with higher fuel costs. Airlines vary both flight frequency and aircraft size in reaction to changes in passenger demand as well as fuel costs, according to our findings.

Table 1: Jet a-1 fuel price-Zambia vs South Africa

AIRCRAFT TYPE AND ZAMBIAN JET FUEL COST	REQUIRED FUEL	PRICE IN ZAMBIA	FUEL COST IN SOUTH AFRICA (	FUEL PRICE DIFFERENCE (US$)
1.BOEING 737-800NG				
LUSAKA-JOHANNESBURG-LUSAKA	5630	$ 7,319.00	$ 5,348.50	$ (1,970.50)
2.BOEING 777-200ER				
LUSAKA-JOHANNESBURG-LUSAKA	6624	$ 8,611.00	$ 6,292.80	$ (2,318.40)
3.EMBRAER 145				
LUSAKA-JOHANNESBURG-LUSAKA	2500	$ 3,250.00	$ 2,375.00	$ (875.00)
Grand Total	**14754**	**$ 19,180.00**	**$ 14,016.30**	**$ (5,163.90)**

Source: Author, (2023)

According to Kleymann & Seristo, (2017), in the market place costs associated with fuel are a primary worry for airline companies, and these businesses have to put in a lot of effort to keep this kind of expenditure under control so that they can maintain a consistent revenue level for a considerable amount of time to come. If there is an excessive rise in the price of aviation fuel, it may be impossible for businesses to recuperate substantial costs, which has a direct impact on the profitability of such businesses.

Further on, it is also noted that besides all other operating costs that the AOC holders require to pay, a substantial amount of cost is on aviation fuel, albeit the air operators have extraordinarily little influence over fuel pricing which ultimately affect the price of their goods and services. (Kleymann & Seristo,2017) The airline industry may also have problems connected to the volatility of the price of fuel. This may have a detrimental influence on the profitability of airlines that are presently functioning in the market. Businesses stand to gain significant profits from a decline in the price of fuel, which in turn enables nonprofit organizations to collect the funds they need.

2.10 Other International Applications

According to Rhoades, (2004), the aviation sector is generally considered a peculiar instance in economic development and has shown a lack of growth in most developing nations. Three (03) justifications are used to explain this unique position.

1) Primarily, aviation has a long history of assisting most countries defense needs by transporting cargo and troops during times of war and by being intimately related to military aviation applications and innovative technology in this field.

2) Second, the transportation of industrial freight and travel, both for business and pleasure, has significant economic consequences on the industry. A significant part of many national tourism policies relies on International foreign air carriers.

3) Third, when it comes down to civil aviation development, there is a clear relationship between airlines and their respective countries. Airlines are a powerful symbol of a country strength, power, and national interest since they fly all over the globe.

National airline subsidies vary greatly as Abate, Christidis, and Purwanto, (2020) advise that research shows most governments prioritize air transport to protect aviation and tourist economic activity and jobs. This means a few national operators in each country get preferential treatment. Large domestic operators provide national firms with economies of scale, enabling them to compete in overseas markets. Route dependency is caused by historical, political, geographical, and operational circumstances that lead to aviation oligopolies. Oligopolies are "too big to fail," requiring government intervention. Government support in response to the COVID-19 pandemic shall bolster national champions and help them gain market share at the cost of smaller enterprises that cannot get as much private or public financing. Pricing and travel service supply might be affected.

2.11 Covid 19 International Policies

Daley & Preston (2012) claim that while progress has been made in establishing proper regulations to minimize aviation's impact on the environment, it has not been enough to solve COVID 19 issues.

The above has been complicated by international aviation's slow growth partially due to the difficulties of fitting into the present climate change mitigation framework, without compromising AOC's financial and social advantages. Any measures to limit aircraft expansion for environmental reasons might stifle development, especially for tourism-dependent nations. Policymakers should reduce aviation's climatic impact while considering economic, social, and environmental issues.

Additionally, according to Gössling & Humpe, (2020) on researching global, regional, national, and individual air travel demand indicated that both the large portion of air travel emissions not covered by present climate regulations and the high concentration of air travel demand among rich frequent fliers are significant to climate change. National and regional aviation climate governance is needed to address aviation emissions. During the COVID-19 epidemic, there was no better opportunity to examine aviation's demand distributions, air transportation desires and requirements (private aircraft, first class suites), development trajectory under recovery scenarios, and interference with mitigation efforts.

As a result of these findings (Gössling & Humpe, 2020), further research is needed to better understand a wide range of interrelationships, such as the distribution of air transport demand under various allocation principles and based on revenue passenger kilometres rather than trip numbers; general interactions between GDP growth and wealth concentration with the energy intensity of air transport demand; or quantifying air transportation subsidies.

Furthermore, the military aviation's climatic effect is also unclear. These insights shall improve air transport governance or devise low-carbon transition plans.

The whole aviation business is facing sustainability concerns that are increasing costs. The aviation sector has a significant influence on the natural environment, especially when air pollution rises. Carbon emissions are one of aviation's biggest issues (Harvey, Shalliams and Probert, 2013).

Consequently, increased air pollution has accelerated global warming. The public's view of the airline sector has shifted negatively due to this issue. To combat air pollution, airlines should adopt current technology, such as aircraft engines that create less pollution.

3.0 Theoretical Framework

3.1 The Six Theories for Zambian AOC Holders (Grounded Theory Method Code generated patterns)

The researcher analyzed all primary and secondary data using the Grounded Theory Method and results generated 105 respondent codes that were arranged into coded patterns/themes. The codes revealed rules/theories that explained the business operating environment for the selected Commercial Air Operator companies. The patterns generated rules/theories that could be applied in understanding the business operating environment for AOC holders in the Zambian context.

3.1.1 The Theory of Political support

"The Air Operator Certificate holder business success or failure is consequential with the country's aviation policies in effect combined with effects of government policies." In principle, it is up to the government to support aviation by enabling the operating environment through aviation policy, aviation state oversight and regulation as well as supporting major infrastructure development such as airports.

From the aforementioned core theory, the researcher determined that the following five supporting guiding theorems exist for the selected Zambian Air Operator Certificate holders.

3.1.2 The Theory of Aviation Management Competency

"The key management expertise, aviation knowledge, and corporate ethics are factors of Air Operator certificate holder capacity for success or failure of the operator business decisions." In principle, being adequately aviation licensed does not mean being business management competent as aviators also need the skills of business management in aviation.

3.1.3 The Theory of Local Aviation Compliance Complexities

"The complexity of compliance with civil aviation regulations by an Air Operator Certificate holder has an effect on operational efficiency influencing business effectiveness." In principle, high compliance costs equally relate to additional air operator business operating costs.

3.1.4 The Theory of Local Aviation Economic complexities

"The state of the national economy including the concomitant of existing aviation input complexities within the country has an effect on the business growth of the Air Operator Certificate holder". In principle prohibitive aviation input cost factors relate into prohibitive business operating environment.

3.1.5 The Theory of Local Aviation Training

"The country's state of aviation training capacity in relation with international standards and quality of training has an effect on training requirements for the AOC holder". In principle inadequate domestic training capacity relates to business financial leakages to foreign training providers.

3.1.6 The Theory of Local Aviation Technical Complexities

" The management of technical and maintenance costs is contingent on the local Aviation Maintenance Organization capability, or alternatively, the wider the capacity of the local Aviation Maintenance, the better the chances of success for the Air Operator certificate holder." In principle inadequate domestic technical and maintenance capacity relates to business financial leakages to foreign technical providers.

3.2 Conceptual Framework

The concept of the study and relationship of the variables with the challenges that were studied are shown in Figure 1 below:

3.3 Operationalization of the conceptual framework

3.3.1. Government Aviation Technocrats /AOC Management

Questions relating to Government Aviation Technocrats and AOC Management as factors affecting the selected AOC holders as well as management job placement criteria were asked following an interview process with expectations on the below:

a) Critical policy adopted by government recruitment criteria usually stress university degrees over aviation experience or knowledge and researchers noted that the Ministry of Transport jobs were important for civil aviation growth.

b) The selected Air Operator Certificate (AOC) holders' management met CAA management approval and licensing norms. The CAA background checks were applied on senior AOC personnel.

Since there are few AOC holders, only a few specialists in each selected organization have aviation management training or academic management degrees.

c) Review of obstacles faced by chosen AOC holders in achieving the aforesaid criteria, which indicates that whether the organizations have adequate key managers with aviation management skills, academic degrees, and experience.

Independent Variables: Aviation Knowledge, Business Management, Aviation Licenses, government recruitment policy, Existing aviation economic Inputs, expert job description.

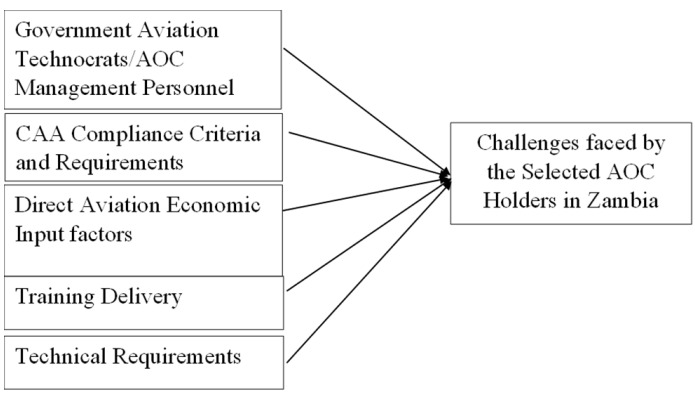
Dependent Variables: Aviation Experience (Number of years working in the Sector), Management qualification, Type of Aviation License (CPL vs ATPL), Economics and finance knowledge/training, levels of education in staff.

3.3.2. CAA Compliance Criteria and Requirements

Questions relating to the factors affecting for the selected AOC holders CAA compliance criteria and requirements were asked following an interview process with expectations on the below:

3.4.1 Qualification Criteria of Pilots: Most pilot type rating training required for license endorsement can only be completed abroad due to lack of type certified aircraft specific simulators. The challenges of reaching the qualification to operate as licensed Type rated pilot have its own challenges on required experience and compounded by locations of the CAA approved training centers. Most training is usually completed abroad, which has very serious financial implications on operator finance leakages.

Figure 1: Variables of AOC Holders



3.4.2 Qualification Criteria of Aircraft Engineers: The qualification challenges affecting engineers is due to the location of approved manufacturer's training centers that are almost all located abroad and is compounded by experience criteria for license privileges which are not easy to attain as experience becomes critical for CAA endorsements.

3.4.2 Qualification Criteria of Air Operator Certificate Management: The AOC management are required to have a minimum of acceptable qualification normally vetted by the CAA and as such due to a small number of experts and the scarcity aviator management schools, having the right Key mangers with sufficient qualification and experience is a challenge to meet by the selected AOC holders.

3.4.3 Aircraft Maintenance Certification Criteria: What are the qualification challenges and where is the training conducted and if not local then how is it achieved?

Independent Variables: Licensing of pilots and engineers, AOC certification, approvals, CAA fees and charges, Aviation law, Zambia Civil Aviation Requirements.

Dependent Variables: Cost of Licensing, Cost of certification, type of foreign and local approvals cost, existing airport and CAA charges, adequacy of available aviation law and ZCARS.

3.3.3. Direct Aviation Economic Input Factors

Questions related to the factors affecting the selected AOC holders connected to the existing government policy on direct inputs for aviation relates to the economy and how the various economic inputs impact business growth were asked following an interview process with expectations on the below:

Cost of Assets and Maintenance; Zambia does not manufacture or export aircraft maintenance equipment, for use by aircrew, or ground crew. These are imported and expensive with little local financial assistance.

Cost of Insurance Premiums: Insurance brokers overseas source all-aircraft insurance underwriters from the global insurance market because no local insurance business has shown underwriting capacity. International insurance arrangements make premiums exorbitant.

Pilot training is costly and requires 10-15 yearly training events for varied proficiencies.

Aircraft engineer training is expensive and needs careful planning and execution.

Aviation Fuel Prices/Levies: Zambia's aviation fuels (Aviation fuel and Jet-A1) are the costliest in SADC, and AOC's monthly fuel expenses adversely impact its finances. Air operator operational costs are high due to fuel prices.

Aviation fees. The local aviation charges applied to commercial air operators should be considered for taxation waivers as done by Ethiopian Government on Ethiopian Airlines, which has been exempted from a list of domestic company charges, resulting in very affordable ticket pricing on the African continent.

Independent Variables: Aviation Equipment, Technical and Maintenance, Aviation Fuel, Airport Charges, Aviation Market, Aviation Training, Compliance and Certification, Pilot and Engineer training

Dependent Variables: Cost and Source of Equipment, Technical and Maintenance input Cost, Zambian Aviation Fuel Cost, Varying Airport Charges, Type and cost of compliance required, Facilities available domestically and cost.

3.3.4. Training Delivery

Questions relating to the factors affecting training delivery for the selected AOC holders were asked following an interview process with expectations on the below:

3.5.1 Aircraft Simulators: There are no locally based aircraft type rating simulators and most of these are sourced abroad and overseas.

3.5.2 Location of Flight Training Centre: Most approved training centers are not available locally and sourced abroad and overseas.

3.5.3 Availability of Training Captains: There are very few approved Zambian aircraft training captains due to a limited number of Qualified Flying Instructors/Flight Examiners as these approvals should be qualified from approved training schools currently all located abroad (Except for Military ZAF Pilots) and endorsed in licenses of training Captain by the CAA

3.5.4 Engineering Schools: Engineer's type rating training is not locally available and normally sourced abroad where the CAA approves the aircraft specific training facilities.

Independent Variables: Required Simulator and Recurrent Training, ATOs, Aviation Trainers, Management training.

Dependent Variables: Location of simulator and number of recurrent training, Approved local/foreign ATOs and cost of training, The capacity of local training, aviation management training facilities.

3.3.5. Technical Requirements

Questions relating to the factors affecting the selected AOC holders Technical Requirements were asked following an interview process with expectations on the below:

3.6.1 Most Zambian AOC holders face enormous obstacles due to the lack of commercial aircraft simulators which results in airlines spending enormous sums annually on pilot training. Simulator training is mostly acquired from abroad in the United States, Europe, Dubai, and South Africa.

3.6.2 The industry needed sufficient MRO facilities, and the existing hangars lacked proper repair equipment and manufacturer approvals. The absence of permitted MRO on behalf of aircraft manufacturers shortens the operational deployment lifespans of carriers, as they should spend substantial time on the ground to allow downtime for maintenance performed overseas. More than seventy percent of the nation's aircraft are older than ten years. This circumstance raises maintenance expenses, fuel usage, pollution, downtime, and safety/reliability.

Independent Variable; Technical works, Maintenance works, Technical tools, Hangars, Approvals, ATOs, MROs. OEM.

Dependent Variables: Quality of Technical Works, Quality of Maintenance Works, Availability of tools, types and Capacity of aircraft hangars in Zambia, types and number of approvals available domestically, number and capacity of approved ATO both local/foreign, cost of foreign ATOs and MROs vs locally available training facilities, OEMs sources, finance expectations.

4.0 RESEARCH METHODOLOGY

The research methodology covered the philosophy underpinning the study. Thus, philosophy in this study included ontological and epistemological principles, research design ideas for creating suitable study forms, contrasting post-positivism with constructivism. The research contrasted post-positivism with constructivism philosophically, methodically, and conceptually, and emphasizes key research perspectives that might assist other researchers study diverse subjects and circumstances. Research ontology describes the philosophy or nature of reality, while epistemology describes how we know this reality. The study introduced the concepts that guided the assessment of the design, conduct, results, and interpretation of qualitative research to novice researchers and others who are not acquainted with this kind of inquiry. It introduced the interpretative and critical research paradigms that provided the basis for the qualitative research procedures most often employed in social sciences research and for the evaluation of such research. Ethical norms in qualitative research are intrinsically linked to quality evaluation criteria and principles for reliable interpretation of qualitative data are also included.

This study employed case study research design as a strategy for primary data collection to help accomplish the desired outcomes and objectives. According to Jabareen ,(2009) social sciences benefit more from case-specific data than prediction theories. Case studies employ analytical induction, not statistical. Mesec (1998) suggests starting research using case study results, repeating a research yields comparable data and results, increasing its dependability backing researchers who use case studies for qualitative research.

Furthermore, the Grounded Theory Method (GTM) of data analysis and results is used to examine a pattern that reveals challenges within the Zambian society or concurrent Air Operator certificate holder failures. The study further acknowledges that purpose of reflexivity in a constructivist GTM was not to remove the researcher's subjectivity from the resultant theory, but rather to give the data precedence over the researcher's assumptions and prior knowledge. The research is nascent to Zambia and having experienced difficulties with tackling literature dearth in the country add to the requirements of a Qualitative investigation as to why the Air Operator certificate holders have not been very successful from the year 1994 to date. The researcher concentrated on collecting and analyzing primary and secondary data for the research project using questions recognized from constructs inside the variables. The chosen study design data analysis method (Grounded Theory Method) aided the researcher in elucidating pertinent aviation industry issues. The researcher investigated primary and secondary data sources targeting an efficient and fruitful investigation that generated the required solution of resolving the “General Zambian Aviation Problem” (GZAP). The gathering of primary data involved the participation of twenty-one (21) key Management personnel representing Proflight-Zambia, Royal Air Charters Ltd and the Civil Aviation Authority. Sampling is an effective method whereby a researcher picks a unit or sample from the entire population in order to quickly collect data and information about the civil aviation management and commercial air operator’s most pressing concerns. Thus, the

researcher presented research questionnaires to key management persons of the selected air operator certificate holders and regulatory professionals from the organizations listed below. Critical Case Sampling (Etikan, 2016) is a method in which a certain number of significant or critical cases are selected and studied.
Additionally, information from other airlines/air operators and various publications shall assist enhance the overall quality of the data. Research Tools include interviews as well as document analysis. The research tools selected for this study include Questionnaire, Observation, Interviews, and document analysis. Data collection is essential to the study since it enables the researcher to collect, compile and analyze information from the named sources. Primary sources are the core source of data collection, while secondary sources focus on acquiring information from published journals and books. The researcher devised a questionnaire to facilitate data and information collection, while secondary sources analyzed articles and journals authored by other authors. The researcher proposes that a theorization method that employs a grounded theory approach involves building a conceptual framework on the basis of existing transdisciplinary literature, as opposed to just presenting the facts and desired occurrences. Strauss and Corbin ,(1990) suggest that concepts serve as the foundation for any theoretical project, and the same data is gathered and the same conceptual labels are applied.

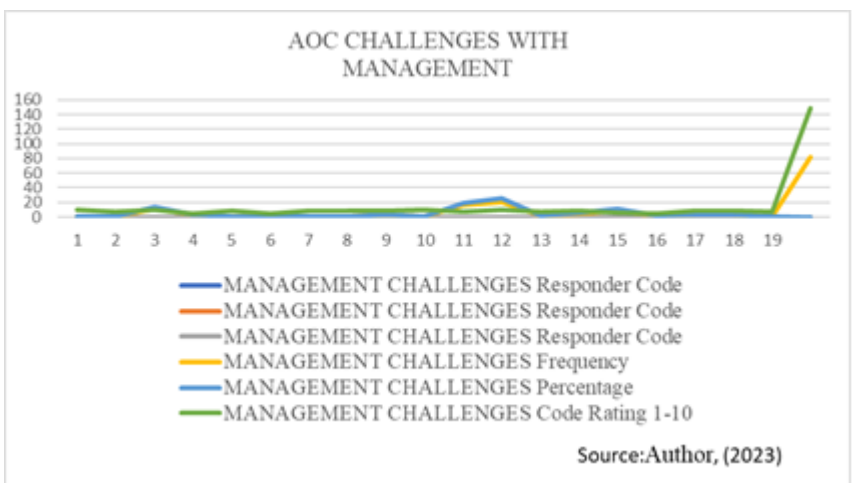
5.0 DATA ANALYSIS, RESULTS AND DISCUSSIONS

The collected data was evaluated using the Microsoft analytical tool Delve. On the one hand, the researcher compiled a set of codes for each response criterion in order to theorize a related challenge inside the structures of each responded question. On the one hand, each open-ended question is represented as a statement followed by the various response codes allotted from responder interview transcripts as coded themes relating to particular “concern” or “challenge”, while on the other, the data obtained from the survey results are represented by tables and charts. Each table contains frequency data, percentage data, and coding data. The researcher has graphically depicted the data for each question using 2-Dimensional Line Charts. In order to answer the research questions, a questionnaire was designed and distributed to 21 participants.

5.1 Question 1: Government Aviation Technocrats/AOC Management Personnel

“What are the gaps relating to the country's potential human resource base, the existing criteria for Government aviation technocrats, minimum applicable Zambian standards (ZCARs) on essential AOC holder management qualifications and the existing aviation management?

Figure 2: Challenges with AOC Management



Question 1 coded below:

Research Question on how the right Key AOC Management team affects the cost of AOC holder business.
The issue of the original research survey question was the contemporary status of AOC holder management. Ninety percent (90%) of the 21 individuals questioned stated that the country had an adequate resource base for Key AOC Management staff.
The first survey question answers are reproduced in response Codes developed from responder transcript snippets.

5.2 Summarized Finding on Management Challenges

The current state of AOC holder management was the subject of the Questionnaire equation. Ninety percent (90%) of the 21 people surveyed believed that the nation has enough resources to support key AOC Management personnel.
Codes generated from responder transcript from the responses applied to the interview questions and secondary data review. The finding report suggests that there are two components to the Management criteria:

1) Accountable Manager/CEO - With the exception of the CAA's discretion, which expects one to be well-grounded and appreciate the aviation industry's AOC requirements, the ZCARs standard does not need any minimal management or aviation credentials.
2) The anticipated management resource for the Key AOC holder may not have received academic training in management principles to apply strong and firm business administration principles and ethics of appropriate corporate governance. The existing ZCAR standard doesn't seem to be well-anchored to maintain an efficient drive between AOC regulations and company administration. This gap in management shall require a review of CAA License criteria to be aligned to appropriate academic program in order to achieve management principles.

According to the ZCARs certification standards, it was possible for an AOC holder to hire highly skilled individuals for crucial managerial and operational roles. In light of the aforementioned, two elements decided whether or not a job of Director of Flight Operations is necessary are the: -

1. Size of the fleet and
2. The complexity of aircraft operation.

The Civil Aviation Authority (CAA) normally verifies and validates the credentials of every candidate proposed for the position of AOC holder management, whether the nomination originates from inside or outside the company (As per ZCARS).
For the CAA, Key Management Approval is in accordance with ZCARs Part 9, which establishes the minimum standards in accordance with the minimum ICAO requirements on AOC holders.
However, the criteria for complex aircraft operators, like Proflight Zambia and Royal Air Charters, who require ATPL holders who require ATPL holders have an airline component that differ from requirements of smaller aircraft operators, such as United Air Charter and Batoka Sky, who do not require ATPL holders for their operations.
The CEO requirements in the ZCARs demand that demonstration of the applicant's ability to lead the organization's top managers towards the accomplishment of the business objectives. The AOC holder ZCARs standards for the CEO and management of privately or family-owned AOC holders' firms are identical to those of all other AOC holders as there are no AOC categories in ZCARs.
It is worth noting that 90 response codes were considered critical for the research results and the survey indicated that almost half of the response criteria codes show reservations on how the CAA inspectors managed AOC certification. which directly affected business financial outflows which in turn disrupts the efficiency of the entire AOC holder business outlook. Yet 21% of the 90 response codes have indicated that

there is both CAA response and AOC business response to compliance as non-negotiable requirements in the aviation industry.

The study then follows the second question about certification challenges encountered while managing CAA requirements on being compliant as a certified AOC holder. It is worth noting that 90 response codes were considered critical for the research results and survey indicates that almost half of the response criteria codes show reservations on how the CAA inspectors managed AOC certification which directly affected business financial outflows which in turn disrupts the efficiency of the entire AOC holder business outlook. Yet 21% of the 90 response codes indicated that there was both CAA response and AOC business response to compliance as non-negotiable requirements in the aviation industry.

5.3 Question 2: CAA Compliance Criteria Requirements

The study then followed the second question about certification challenges encountered while managing CAA requirements on being compliant as a certified AOC holder.

"What are the concerns of selected AOC holders on aviation compliance requirements in Zambia?"

The Question Response coded as:

5.3.1 Compliance vs AOC Costs (21 Responders)

Research Questions on how compliance costs affected the conduct of business for AOC holders.

The study data showed that there are minimum regulatory requirements to be met by the AOC holder's business before being issued an operating certificate by the CAA and it was expected that compliance and certification criteria was usually completed by the operator being subscribed to processing fees. These certification criteria and fees can be complex and also present problems with the cost of operation and the different interpretation of applicable standards within the same uniform set of regulations therefore breeding complications according to size and complexity of the AOC holder operations.

Certification and regulations criteria operations, according to 37 responses or 41.1% of respondents from the sample population indicate a ridiculously huge concern on ZCARs Part 9 on Air Operator Certification. Research Question on how compliance criteria affected the cost of AOC holder business and Snippets from responder transcripts were tabulated in paragraph list in the study.

5.4 Summarized Finding on CAA Compliance Criteria and Requirements

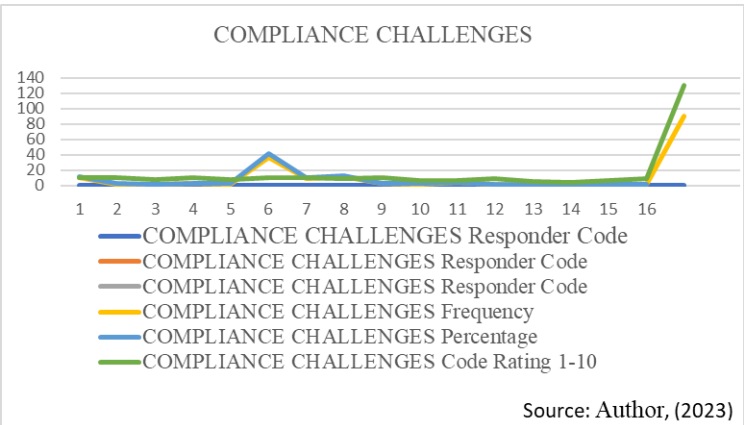
The study data showed that there were minimum regulatory requirements to be met by the AOC holder's business before being issued an operating certificate by the CAA. The compliance and certification criteria are usually completed by the operator under supervision of the CAA Certification Project Manager (CPM) and this process is subject to processing fees. Certification and regulations criteria of operations, according to 37 responses or 41.1% of respondents, are a huge concern with regards to applicability of ZCARS Part 9 on Air Operator Certification. To guarantee safety in the aviation business, AOC holders should meet the compliance obligations and adhere to a uniformly applied set of standards for all operators to meet operator minimum "compliance" requirements.

It is however noted that the minimum requirements set by the CAA are meant to meet international operations standards were drafted without less consideration or reference for applicable local Zambian domestic standards.

The research data analysis showed that Zambia had embraced ICAO standards on certifying AOCs in ZCARs Part 9 without fully appreciating the constraints that arise from applying international standards on a domestic scale. The CAA application of standards from two separate sources, The Civil Aviation Act No 7 of 2012and ZCARs, presents a challenge to the interpretation of relevant aviation legislation in Zambia. The current AOC variance for size and complexity of AOC holders has not been evaluated critically, and it is required to examine the different forms of commercial aircraft operations in order to divide them into separate portions of ZCARs requirements.

The ZCARS should act as a baseline norm for all AOC holders, administered fairly by the CAA, and should be a source of guidance, orientation, and inspiration. However, the adoption of aviation legislation and recurrent training requirements has increased the AOC holder training costs, and privately-owned family AOC holders are held to a different standard than larger defined AOC holders. Additionally, compliance standards in Zambia consist of standardized regulations that all operators, regardless of the size or complexity of their operations, should follow.

Figure 3: Compliance Challenges Graph



The research data further revealed that, in 2009 an ICAO oversight audit had raised significant safety concerns for the Department of Civil Aviation (DCA) and the European Union put Zambian AOC Holders on the list of banned operators. Since the transformation of the DCA into the CAA in 2012, efforts to improve compliance have been adopted, such as the passenger safety charge introduced in 2016.The current CAA fees are modest and payable in Zambian kwacha, but the concern from AOC holders is not on the modest fees but rather on frequency applicable for a variety of these modest fees.

High capital costs for AOCs shall be invested in the AOC business entity, and compliance is mandatory to every AOC holder who engages in aviation operations.

Comparing the FAA (USA) standards in contrast to Zambia standards, some respondents were concerned about key compliance with regards to aircraft exports. Progress necessitates that the CAA be more interactive with the aviation sector on contentious regulations, to streamline compliance and reduce compliance fees.

The researcher noted that foreign ATOs are expected to provided needed aviation training to various operators in Zambia, but the majority of CAA ATO approval audits are typically conducted independently for each AOC holder. This has an effect on the profitability of AOC holders, and the CAA is aware of this and recognizes the need for a consensus to reduce some compliance standards. However, the CAA inspectors have observed commonality amongst operators in audits, but the documented requirements for individual AOC holder operations manual may present a different outlook on actual operator compliance. Compliance is largely advantageous since it assists AOC holders in avoiding legal issues and also protects a company's credibility. CAA compliance fees are cost prohibitive due to limited operational funds, and the CAA is having difficulty finding sufficient numbers of approved licensed staff to deal with the fundamental change in required aviation industry expansion projects.

Additionally, the CAA's position on Zambian AOC holder references to the FAA did not negate the ICAO standard that the FAA's responsibility has been removed. The CAA is still struggling with numbers of

approved licensing staff that would be needed to handle such a fundamental shift of aviation expansion projects. The CAA's operations cannot be sustained without government funding, so fees are necessary to make the Authority self-sustaining. Oversight Complications on AMOs/Foreign MROs, high capital costs for AOCs, CAA License System Restrictive, AOC Variation Standards, and CAA Measures on Standard AOC complexity all lead to high compliance costs. The emergence of social media has increased the visibility of AOC holders' operations and the public's ability to hold them accountable for their mistakes.

However, there are insufficient pre-requisite standards for extending expired license for guiding the CAA inspectors. The CAA needs to free its inspectors from being liable to extensions which need to be delegated to aviation experts from the industry.

5.5 Question 3: Direct Aviation Economic Input Factors

" What is the impact of the current applicable economic inputs that directly affect the aviation industry operations. on selected AOC holders?"

In response to the question about the economic climate, the study examined the response codes of survey respondents, who indicated that the aviation industry has experienced similar retrogressive inputs from the country's economic policies for a much longer period of time, dating back to the last UNIP years, when compared to neighboring regions. 28.4% of 95 crucial economic codes from respondents show a great deal of worry over all combined aviation economic policies, whilst 14.7% of survey codes suggest that the price of aviation fuel is a significant economic barrier to the business costs of AOC holders.

The answer codes indicated that 42.4% of the 95 important codes had a clear correlation with the country's current Charges and fuel pricing approach.

Research Question on how the economic input factors affected the cost of AOC holder business and Snippets from responder transcripts were tabulated in paragraph list in the study.

5.5 Summarized Findings on Aviation Economic Activities

The 94 response codes used to compile this summary, analysis corroborates that the variety of existing direct aviation economic input policies pose a huge challenge to the aviation sector such that the existing bottlenecks have a direct impact on profitability, market share, and sales volume. In light of the current state of affairs, it has become clear that aviation fuel significantly impacts aviation profitability.

The study further examined the codes of respondents that indicated the aviation industry has experienced similar retrogressive inputs from the country's economic policies for a much longer period of time, dating back at a critical period in the final years of UNIP government. The effects of aviation economic input challenges become apparent when compared to aviation economic policies adopted by the neighboring regions. At least, 28.4% of 95 crucial aviation economic concerns codes from respondents show a great deal of worry over all combined aviation economic policies, whilst 14.7% of the analyzed codes suggest that the price of aviation fuel is a significant economic barrier to the business costs of AOC holders.

The answer codes indicate that 42.4% of the 95 important codes have a clear correlation with the country's current Charges and fuel pricing approach.

Every AOC holder business today, without any doubt, is in aviation business for high returns on profit. However, majority of the time, these companies are unable to meet their goals because prohibitive cost factors like fuel, have volatile price fluctuations in Zambian aviation markets. Consequently, there is little to differentiate an appreciation on incentives offered by existing government economic policies as the result can still be seen in increased cost of aviation services such as ticket fares and charter rates due to marginal costs becoming crucial for any AOC holder, and therefore high pricing becomes the easier way to stay competitive for longer.

The study data on response codes were tabulated to determine how the Zambian Aviation Economy inputs affected the conduct of AOC Business. Almost half of the response codes (42,4%) suggested that the

aforementioned direct aviation economic input obstacles have caused AOC holder businesses to be cost prohibitive.

The Zambian government based its airport charges, CAA passenger safety levy, and other related charges on those of other developed countries and major economies, and the current CAA compliance fees form part of the basis for fair application.

The local direct aviation economy inputs have generated business complications due to the sector's extremely high taxation criteria, such as airport Charges, CAA Charges, and ground handling fees. High fuel prices and the value-added tax (VAT) that is applied to some aviation inputs are two additional elements that contribute to the complexity of operational expenses.

The Zambian government needs to review existing aviation policy on investment guidelines for ZDA/CEEC plans for AOC holders/AMOs/MROs. The government also needs to review direct input policies for aviation such as strategies on aviation fuel pricing, airport Charges and levies, CAA compliance fees, State of ATOs, technical support for aviation industry and in particular AMOs, ground support services, and aviation IT systems. There are concerns over product similarities and manufacturing costs that do not correspond with pump prices on the Zambian petroleum market, and the price of Jet-A-1 aviation fuel and paraffin that should not vary greatly.

The Energy Regulation Board (ERB) needs to further interrogate the pricing mechanism on all aircraft fuel types. The Energy Regulation Board (ERB) should do further investigations on the cost of aviation fuel to determine why pump prices across the world are typically inexpensive, yet the cost of fuel in Zambia is among the highest in the world.

However, the CAA and ZACL authorities focused more on maximizing higher returns from Charges/levies to meet their operational needs, rather than maximizing lower returns with a higher volume. This has resulted in a drop-in air tickets and other flying services offered on the Zambian market. Foreign operators that enjoy economies of scale, taking most of the business away from the local operator thus making it harder for local operators to compete on the international market. The Zambian government has prioritized stimulating investments in AOCs without fostering the development of AMOs into fully-fledged MROs, resulting in aircraft sector maintenance costs soaring due to insufficient manufacturer certified technological facilities and insufficient availability of approved equipment and tools. To address this, the CAA should work closely with ZDA/CEEC, AOC holders and the government to create a favourable climate in which manufacturers may establish certified technical support facilities.

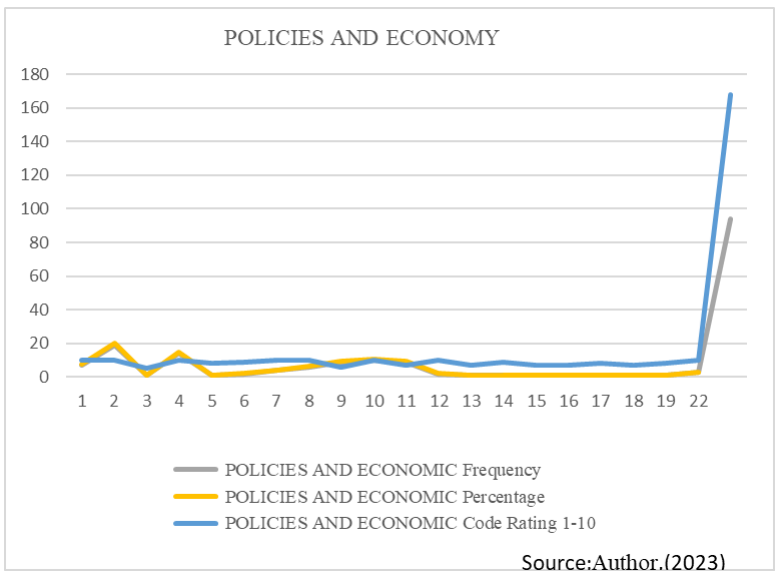
Zambia is strategically positioned adjacent to eight other Central, Eastern, and Southern African nations, and the advantages of the Single African Air Transport Market (SAATM) encourage the growth of Lusaka as a major regional air transportation hub.

The CAA would like to see AMO transitioning into CAMO/MROs and encourage entrepreneurs to set up CAMOs/MRO facilities. The aviation industry needs to interrogate the local capacity to build locally accessible technology that would reduce the cost of doing business in Zambia. The Zambian air transport domestic market is still a modest market and the majority of economic factors have strangled the income base of AOC holders. The Yamoussoukro Declaration (YD) provides African AOC holders with the ability to register for SAATM advantages, which allow the smaller aviation market with significant domestic destinations to operate international feeder passengers through the designated airports as "Hubs". The YD also stipulates the use of the hub-and-spoke system for 70 percent of an African airline's regional and feeder routes. This shall lead to a tourist boom and a decrease in aviation prices. All African airline companies should work together to target the 1.3 billion-population of the African market by implementing win-win methods similar to the Chinese economic policies. The domestic demand for aviation services in Zambia is relatively low due to its small population and small GDP per capita. This has led to lower load factors and higher operator costs, leading to reduced numbers of travelling public and few industry players. The government should encourage

private business to offer aviation ground support services to exploit the ground handling business potential by providing competitive services.

ZACL had the biggest market share as a service provider of aviation ground handling services, but support services from ground handling providers for operational ancillary equipment leave much to be desired. The maintenance, spares, and shipping needs of the sector all necessitate substantial outflows of foreign exchange, and most of the required spares and consumables have to be imported. The existing government policy on aviation spares aims to mitigate the high cost of the inputs, but it is insignificant to the overall prohibitive maintenance costs. Sustainable aviation fuel is a crucial factor in achieving the industry's climate goals, but it requires government involvement. Operating leverage matters, and AOC holders should consider purchasing fuel-efficient, low-maintenance aircraft if passenger demand increases.

Figure 4: Economic and Policy Challenges



Source:Author.(2023)

Older aircraft depreciate less annually than newer ones, but older aircraft cost more to fly if passenger demand drops and flights are curtailed. The age of existing aviation fleet is a major concern, and it is up to individual AOC holders to modernize their fleet. To reduce carbon emissions, organizations such as CORSAIR have set targets to achieve Carbon neutrality by 2050. AOC holders are encouraged to take part in Long Term Aspiration Goals (LTAG) and to monitor aviation advancements on a worldwide platform. Airport infrastructure improvements are also important.

Government developmental projects such as airport infrastructure enhancement and economic regulation of aviation are potential growth markets for AOC holders. To increase their domestic outreach, AOC holders should consider existing government interventions and initiatives, such as the Public Private Dialogue Forum (PPDF) and dialogue with stake holders. Airport Charges can be redesigned upon operator request to engage with ZACL.

5.6 Question 4: Training Delivery

"How are the selected AOC holders managing training costs?" and "What are the existing gaps in local aviation training?"

The research analyzed data on to the fourth question responses regarding training challenges faced by AOC holders. The study notably analyzed 68 response codes as critical for the research results, and the survey confirmed that nearly half of the response criteria (45.5%) on the codes indicate concerns about how the local ATOs lack of training capacity has contributed to foreign outsourced training which has negatively impacted AOC holder forex outflows. The lack of capacity had disrupted the efficiency of the entire AOC holder operational outlook on aviator availability. Nevertheless, 14.7% of the 68 answer codes showed that there was both CAA and AOC response concerns acknowledging that the local ATOs lacked acceptable capacity to conduct critical aviation training.

Response codes and Snippets from responder transcripts economic challenges were tabulated in the study data analysis as paragraphs of codes.

5.6.1 Training Requirements vs Cost of Business (21)

The study data revealed that AOC holders and other industry related companies had a challenge in meeting training requirements due to inadequate aviation skills training facilities in Zambia.

The existing ATOs lack the capacity and training equipment necessary to meet the minimum AOC certification training standards for both the existing airline fleet and the AOC set up, and a significant proportion of the training requirements of AOC holders is usually subcontracted to organizations based in other countries. Nonetheless, the CAA had developed its own inspectorate capable of certifying ATOs through the implementation of certain procedures. The CAA was hopeful that the approval for Soft Skills training shall eventually be granted, as evidenced by the fact that ATOs have developed adequate the global Covid19 pandemic has caused a shortage of training facilities and approved instructors in Zambia. Proflight Zambia was granted permission to train its own staff who meet instructor credentials as Soft Skills trainers, but the development has a minimal impact on decreasing a portion of the expenses associated with operator training. The Zambia Air Services Training Institute (ZASTI) only offered a limited number of aviation courses and had insufficient number of trainers with the necessary qualifications to teach some of these essential courses.

5.7 Summarized Finding on Training Delivery

The ATO facilities in the country are lacking in meeting the standards and the necessary equipment in order to fulfil the AOC holder training requirements, so AOC holders must invest a significant amount of money in order to guarantee availability of training.

Additionally, technical personnel rated on certain aircraft need specialized training abroad, and the scarcity of recognized training centers for each aircraft type in the country is a barrier to that goal. The CAA has made reasonable changes to the requirements that must be met by local ATOs in order to provide certain kinds of aviation training like soft skills training, certification requirements for installation of raining equipment such as FSTDs, which are state-of-the-art flight crew training.

The study data revealed that AOC holders and other industry related companies have a challenge in meeting training requirements due to inadequate aviation skills training facilities in Zambia. The existing ATOs lack the capacity and training equipment necessary to meet the minimum AOC certification training standards for both the existing airline fleet and the AOC set up, and a significant proportion of the training requirements of AOC holders is usually subcontracted to organizations based in other countries. The CAA has developed its own inspectorate capable of certifying ATOs through the implementation of certain procedures. The CAA is hopeful that the approval for Soft Skills training shall eventually be granted, as evidenced by the fact that ATOs have developed adequate capacity. However, during the global Covid19 pandemic lockdowns, there were not enough training facilities and approved instructors.

The study data also showed that Proflight Zambia was recently granted permission to train its own staff who meet instructor credentials as Soft Skills trainers although the development has a minimal impact on decreasing a portion of the expenses associated with operator training. The Zambia Air services Training Institute (ZASTI) only offers a limited number of aviation courses and has insufficient number of trainers with

the necessary qualifications to teach some of these essential courses. The ATO facilities in the country are lacking in meeting the standards and the necessary equipment in order to fulfil the AOC holder training requirements, so AOC holders shall invest a significant amount of money in order to guarantee availability of training. The details in this study indicate AOC holder challenges are usually on the high costs of aviation training for AOC holders in Zambia. The foregoing indicates cost prohibitive nature of business costs such as fees, tuition, materials, technology, licensing, travel, accommodation, per diem, meals, and other incidentals, and the outflow of foreign currency to meet the essential AOC holder training requirements. Additionally, technical personnel rated on certain aircraft need specialized training abroad, and the scarcity of recognized training centers for each aircraft type in the country is a barrier to that goal.

The CAA had made reasonable changes to the requirements that shall be met by local ATOs in order to provide certain kinds of aviation training like soft skills training, certification requirements for installation of raining equipment such as FSTDs, which are state-of-the-art flight crew training devices that can replicate virtually any flight and environment conditions. The CAA is responsible for approving these devices whether it is located in Zambia or abroad, so that the training acquired meets the Zambian aviation licensing standards. Zambia has no civil aviation industry approved synthetic flight training devices or simulators from which required aircrew training and recurrent training can be sourced. This has resulted in high training costs for AOC Holders. There is an immediate need to distinguish between international training standards and outsourced training for large/complex aircraft over 5700kg and smaller aircraft under 5700 kg.

The government had recognized gaps in aviation training delivery and has directed ZASTI to be recapitalized and revived to meet international standards. ATOs should integrate aviation training modules to academic programs at universities. ZASTI primarily offers foundational courses but does not offer complex aircraft ratings or aviation degree programs. The guidance standards for ZASTI shall be drawn from affiliation with ICAO Train Air and local university associated programs.

5.8 Question 5: Technical Requirements

"How do the existing local aviation technical support and infrastructure affect the selected AOC holder costs?"

The research data on the impact of technical support requirements on the operations of AOC holders revealed that both the AOC holders and the CAA were extremely concerned about the high cost of maintenance. It is regrettable that the majority of AMOs are restricted repair facilities with limited authority to meet certification requirements for MROs. This should be addressed and also be recognized that compliance and certification standards to be met by AMOs may be complex and generate problems with actual question as to why the aviation industry has fallen behind with regards to manufacturer accreditation.

Question 5 was coded as:

5.8.1 Management Resource vs Cost of Business (21 Responders)

Research Question on how the available technical support affected the cost of AOC holder business and Snippets from responder transcripts on technical support were tabulated in paragraph list in the study.

5.9 Summarized Finding on Technical Requirements

The research data on the impact of technical support requirements on the operations of AOC holders revealed that both the AOC holders and the CAA are extremely concerned about the high cost of maintenance.

This research study data reveals that a lack of manufacturer-approved repair facilities has an effect on the cost of technical assistance likely to continue being exorbitant for AOC holders. This issue is exacerbated by the The absence of accreditation and authorization to repair manufacturer-restricted components, as well as inadequate technology for specialized component diagnostics and repair. The lack of infrastructure, inadequate training, non-prioritized safety equipment for technical assistance, and poorly performing structures that allow maintenance has proven costly for aircraft operators. The Civil Aviation Authority (CAA) has noticed that the majority of aviation maintenance organizations have some type of foreign

affiliation, which may be one of the primary causes of rising maintenance compliance costs. Zambia Airways, the first national airline that is no longer in operation, is an important historical landmark that should be remembered and studied.

The foregoing is as result of data indicating that Zambia Airways (In-Liquidation) maintenance department was a top-notch facility for repairing and maintaining aircraft, and it offered third-party maintenance to other airlines before it went into liquidation. However, there is a lack of modern technical tools and support equipment needed to service a variety of complex aviation industry aircraft and equipment making the local aviation industry operations cost prohibitive and expensive. MRO certification from an aircraft technical manufacturer is essential for reducing maintenance costs in the aviation sector. Instead of investing in infrastructure development in Zambia, AOC Holders and AMOs typically outsource these services to other countries, leading to a loss of foreign exchange, undermining the economic growth of Zambia, AMOs rely on technical assistance from abroad, which escalates their operational costs.

Airport authorities do not have a plan to enhance the number of maintenance facilities near airport terminals, and existing participants are unable to create the requisite maintenance facilities. Potential investors are faced with a significant maintenance deficit, which could result in high operating costs due to the use of external maintenance facilities sourced primarily from abroad. The Zambian government should put in place a deliberate policy to include aircraft maintenance facilities at ALL airports in Zambia or give good and conducive incentives to investors wishing to construct aircraft maintenance facilities. The Zambian AOC pays exorbitantly for outsourced industry technical support functions, but the government funded national airline may be opening for the transition and construction of sophisticated AMO facilities. The existing government entrepreneur policies have not fostered an environment that promotes AMO entrepreneurship, which has hindered the growth of AMOs and MROs.

The CAA maintenance license certifications are only offered once a year, creating a challenge for certification or licensing of maintenance engineers, which is detrimental to the development of the local aircraft engineering work force. The CAA's support for aircraft maintenance license certification or licensing of maintenance engineers is challenged due to the socialist era education policy, which focused on job seekers rather than innovation and entrepreneurship. Most technicians and engineers want to work for a company rather than establish a company, making it difficult for the CAA to serve its purpose. It is regrettable that the majority of AMOs are restricted repair facilities with limited authority to meet certification requirements for MROs. This should be addressed and be recognized that compliance and certification standards to be met by AMOs may be complex and generate problems with actual questions as to why the aviation industry has fallen behind with regards to manufacturer accreditation.

5.10 Overall Research Data Analysis and Results

The success or failure of a company that holds an Air Operator Certificate (AOC) depends on national aviation policies. Strong government aviation policies increase the economic opportunities of AOC holders, while weak aviation policies result in a restrictive business environment. The study's results show how important it is to reevaluate the amount of political initiatives required to transform the aviation industry's problematic growth trajectory into a healthy sector. 90% agreed that the country had sufficient manpower resource base to maintain essential AOC Management staff. Most local managers do not have the academic credentials that are regarded essential even in fields completely unrelated to aviation business.

The country, through the CAA, shall maintain its commitment to the large pool of aviation resource professionals so that these individuals may continue to carry out the crucial tasks associated with critical AOC management. Zambian universities need to start offering Civil Aviation Management programs immediately. The country is severely lacking in qualified local aviation technocrats, the vast majority of whom do not hold university degrees or equivalent. In order to hire more people in Zambia who are qualified managers and have the necessary AOC abilities, it is necessary to standardize the requirements for hiring people with AOCs. The

increasing complexity of aviation regulations has a negative impact on the commercial efficiency of AOC holders.

The CAA's interpretation of relevant aviation legislation in Zambia is complicated by the fact that requirements from two different sources, the Civil Aviation Authority Act no 7 of 2012 and ZCARs, must be applied. Some commonly accepted CAA procedures may obstruct local economic growth if the authority considers the implementation of scalability audits to be a hindrance. The Zambian government should be accepting that the AOC holder firm faces a variety of challenges. Companies in the present day are struggling to keep their operations running smoothly. Rising prices of jet fuel are a primary factor in the high cost of airline tickets.

AOC holders must create policies that encourage collaboration and hard work from all employees if they are to stay up with the dynamic demands of the modern business environment. The Zambian Civil Aviation Authority (CAA) has been asked to help with research into alternative revenue streams to the current system of collecting compliance fees. The study found that in order to encourage residents to participate in the industry, the Zambian government should review fundamental concerns within its policies on innovation and entrepreneurship. It is important for local AOCs to take advantage of the Yamoussoukro Declaration, which states that 13 out of 35 African countries are ready for the Single African Air Transport Market (SAATM). The inability to adequately staff flights has negatively impacted AOCs' overall operating efficiency.

Foreign outsourced training has had a negative effect on AOC forex outflows. Long-Term Aspirational Goals (LTAG) are advocated for AOC holders since they provide opportunities for current operators to expand and experiment. Businesses concerned about the impact of disruptive and innovative technologies on their operations, systems, and employees should adopt a change management strategy. The Zambian Approved Training Organizations (ATOs) should acquire FAA-approved synthetic flight training devices or simulators so that initial and ongoing aircrew training can be conducted in-country. Due to a dearth of government-sanctioned training facilities, the price of education for AOC holders is quite high.

There is an immediate need to develop ATO courses that are integrated into certain academic majors at universities. The study finds that the control of technical and maintenance expenses is dependent on the level of capacity of the local Aviation Maintenance Organization (AMO) or "the more the investment, the greater the possibilities of success for the Air Operator license holder". The study recommends that AMOs should be fully integrated as locally dependent organizations to stop foreign certification of AMOs, which is a major factor in rising compliance costs for AOC holders. The Zambian government must offer commercial options to arrange finance for the acquisition of the necessary certified equipment and tools. The aviation industry should look into the country's potential to develop locally accessible technologies.

If the CAA is doing its job well, the AOC holder shall feel confident about dealing with concerns related to regulations, training, and compliance costs. The study's author has taken note of the suggestion that a knowledge of aviation be a requirement for top government aviation positions. University degrees are typically the only criterion for employment with little attention paid to prior experience or education in the aviation business. After answering the five questions from the 21 responders, the researcher concluded that the identified 5 key distinct problematic areas in the aviation industry make up the greatest concerns on AOC holder challenges are as tabulated in the research questions and responses.

The challenges of the AOC holders in Zambia are listed as follows: -

1) Key AOC Management Specialty is insufficiently applied.
2) Restrictive AOC Variation Compliance requirements,
3) Existing Economic Policies require robust incentivization.
4) Lack of appropriate and Approved Training Facilities,
6) Lack of MROs.

The research data showed that the above list as a complication area that exists in the Zambian aviation industry.

The research data also deduces two (02) preferred methods of preferred resolution channels within the aviation industry for AOC holders as follows: -

1) The business managers behind the AOC feel confident that the CAA would assist in addressing the concerns on legislation, certification, training, airport taxation criteria and regulatory costs in the most effective way possible to encourage business continuity.
2) The AOC holders also appreciate recognition from the government effort in formulating new enhanced and focused policies targeting aviation development in its political manifesto as the frontline leader taking up the initiative to specifically solve the restrictive economic policies on required operational inputs and essential technological facilitations that have negatively affected aviation growth from 1994 problems that have since extended into the present day still affecting existing commercial aviation sector.

According to the study data, the aviation industry is currently dealing with the fallout from the proliferation of alternative modes of ground transportation. In addition to this, it has been observed that the high-ticket air fare has a significant negative effect on the overall performance of the aviation and the tourism sector.

In Chapter 6, conclusions and Recommendations were discussed summarized in the paragraphs that follow. below.

6.0 RECOMMENDATIONS

6.1 The Aviation Political Support

The research found that for the country to thrive, the government should adopt economic growth policies that determine air operator license holders' operational criteria. Dr. Kenneth David Kaunda, the first Republican President, merged UNIP aviation strategies into government policies whilst Dr. Fredrick Jacob Titus Chiluba's MMD administration modified aviation rules and closed Zambia Airways (In-Liquidation) before the auditor could release a complete audit report on the company's assets. The AOC holder's aviation business thrived from 1964 to 1994, when the new government policies caused a decline that continues currently, according to the study. Thus, political actions are needed to turn the aviation industry's difficult growth trajectory into an economically viable sector that takes use of Zambia's land-linked geographic position. The Civil Aviation Authority Act No. 7 of 2012 defines an aviator as an AOC management team member who may manage Air Operator Certificate holders and other aviation-related organizations. Most government aviation technocrats are neither pilots nor aircraft engineers; they gained knowledge about aviation on the job training. Potential staff members need to consider the Ministry of Transport's careers, which are crucial to civil aviation growth, while asking qualifying modifications. The aviation background of the Permanent Secretary (not a pre-requisite but knowledge of the sector could be an advantage), the Transport Director, the Assistant Director for Aviation and Water Transportation, the Principal Aviation Officer, the Director of the Aircraft Accident Investigation Board, members of committees that oversee aviation policy, and appointed aviation consultants should be considered when choosing a government appointee. The Transport Ministers normally assist the Executive on aviation affairs. Politics determine the appointment of Transport Minister but the Zambia government needs to select aviation technocrats to advise the Minister and Executive on aviation policy to preserve the status quo. These potential government experts should be sourced from the CAA, AAIB, aviation companies, and aviation expertise in customer service, marketing, flight logistics, aircraft maintenance, and operations. The investigation recommended that the government required aviation technocrats in order to make robust aviation policy contributions without relying on a single expert such as the DG CAA only who at present has little opposition with regards equivalent officers to challenge misguided advice.

From the above main theory, the researcher has evaluated there exists five-sub guiding theorems for overall success for the Air Operator Certificate holder business as follows: -

6.2 Management Capacity

In The researcher has created a set of codes for each response criterion and found that 90% of the 21 people surveyed believe the nation has enough resources to support key AOC Management personnel. The study also has found that the essential AOC management approval complies with ZCARs Part 9, which establishes the minimal requirements or non-compromised setup in compliance with the ICAO regulations for AOC holders. The researcher has evaluated the data results of the Zambian Aviation main guiding theory for Air Operator Certificate holder success and the theory of political support, which suggests that key management expertise, aviation knowledge, and corporate ethics are factors of Air Operator certificate holder capacity for success or failure of the operator business decisions. The theory also suggests that the Ministry of Transport should establish a Department of Aviation under the Director of Transport to help with the disparity in aviators. Lastly, there is no specific AOC internal competency that supersedes the CAA vetting requirements for qualifying a key manager.

Following the liquidation of Zambia, Airways in 1994, the bulk of ex-Zambia Airways employees were compelled to seek jobs abroad, with some having difficulty recruiting qualified AOC managers suited to their operational context. Zambia needs to review its education policy to include the component of Civil Aviation Management courses, streamline employment criteria of AOC holders, and have a deliberate policy on acceptable CEO credentials. The majority of eligible local aviation technocrats in the country do not possess degrees or similar academic qualifications, and the majority of locally hired managers have lacked the Aviation equivalent of academic management qualifications or relevant university qualification required for effective implementation of complex business strategy, solutions and financial decisions. Zambia has adopted ICAO standards that are designed to apply to international aviation operations without fully appreciating the constraints that arise from applying international standards on a domestic scale. The Zambian government must embrace the fact that the AOC holder business has a wide range of problems and obstacles.

It is encouraged to conduct a thorough investigation on the pricing criterion of aviation fuel as this has caused some long-haul airlines considering refueling outside of Zambia or carrying adequate return fuel to avoid picking up fuel from Zambia. The Zambian government should review major issues to encourage citizens to invest in the aviation industry and take advantage of the Yamoussoukro Declaration (YD) to strengthen Lusaka's Kenneth Kaunda International Airport. The Zambian Air Services Training Institute (ZASTI) is encouraging AOCs holders to take part in the Long-Term Aspiration Goals (LTAG) to help existing operators grow and become innovative. The CAA is also encouraged to provide requisite Soft Skills training to AOC holders, which should help in avoiding the outsourcing of this type of training to foreign firms. There is a need to build ATO courses integrated with and incorporated into specific university academic programs, as well as design courses that are aligned and imbedded within selected University Academic programs.

The Minister of Transport has directed that ZASTI be recapitalized and revived to meet international standards, and the CAA should provide leadership in deliberations to bring in government assistance to refocus policies that shall ensure that internal initiatives on increasing capacity of local AMOs. The majority of Aircraft Maintenance Organizations (AMOs) should be fully integrated as locally dependent organizations to resolve concerns about the dearth of approved technical facilities. The Zimbabwe government should maintain a historical perspective of past aviation activities and reflect on the successes of the defunct airline, Zambia Airways (In Liquidation) aircraft. The aviation sector in Zambia is facing a lack of maintenance, repair, and overhaul of MRO facilities, which is a concern among AOC holders and investors. The government should take a leading role in addressing regulations, training and compliance complications, certification complexities, and other issues to promote business continuity.

To ensure business continuity, the government should unlock existing AMOs without restrictions on ability to decrease costs for Aviation maintenance and emphasize encouraging investments in both AOCs and Amos.

6.3 Conclusion

The researcher deduced that the AOC holders may be assisted resolve the issues raised in this research by either of the below routes: -

1) The AOC holders may review the challenges with the CAA taking a leading role in addressing the issues on regulations, training and compliance complications, certification complexities in the most efficient way to promote business continuity.
2) The AOC holder may equally prefer that the Government takes a leading role in addressing the prohibitive government and economic policies, airport and aviation Charges, levies as well as critical technical facilitations that affect the conduct of business

The aviation industry is reportedly facing the consequences of increased substitute ground transportation options. In addition, it has been seen that the business's performance is substantially not improving as a result of the high-ticket pricing.

The researcher has noted the recommendation that the policy be revised to include a background in aviation as a prerequisite for critical government aviation decision posts.

In the majority of situations, hiring policies emphasize only university degrees as a prerequisite, with little focus on aviation industry expertise or background. Notwithstanding the aforementioned, most key policy technocrats responsible for making aviation policy direction at government level may have no aviation industry background or equivalent aviation qualification even though the non-aviator technocrats may sit as policy formulators following appointments and secondments from their previous and unrelated non-aviation industrial disciplines.

This research hopes to drive Zambian AOC holders to "Be a Business, Not in Business.

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