

ASSESSING THE POST-COVID-19 AIRLINE SERVICES AND RECOVERY STRATEGIES IN THE NIGERIAN AVIATION INDUSTRY

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ABSTRACT

The COVID-19 pandemic precipitated an unprecedented crisis in the global aviation sector. This study investigates the profound impact of the pandemic on Nigeria's aviation industry, analyzing operational metrics and passenger service quality experiences to evaluate the effectiveness of adopted recovery strategies. The research utilized a mixed-methods approach, including descriptive statistics, regression analysis, Relative Importance Index (RII), and a SERVQUAL-based survey of 292 passengers and staff at Murtala Muhammed International Airport (MMIA), Lagos. The findings quantify the severe pandemic-induced declines, including a 64.2% drop in Revenue Passenger Kilometers (RPK) in 2020, and identify the critical recovery strategies adopted by Nigerian airlines. Enhanced Safety Protocols (RII=0.854), Digital Transformation (RII=0.813), and Dynamic Pricing (RII=0.781) were paramount. Structural equation modeling revealed that passenger satisfaction is significantly driven by perceived safety ($\beta=0.614$) and digital convenience ($\beta=0.547$). The study contributes to crisis management literature in emerging markets by contextualizing the Resource-Based View (RBV) and Crisis Management Theory, offering data-driven recommendations to foster a more resilient and sustainable aviation sector in Nigeria.

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1 | Introduction

Global pandemics present acute challenges for the aviation industry, which relies on the free movement of people and goods. The COVID-19 outbreak in late 2019 grounded flights worldwide, with Nigeria's sector—already grappling with infrastructure deficits and high operating costs—experiencing severe revenue losses and dwindled passenger confidence. To understand how Nigerian airlines adapted, this study integrates the Resource-Based

View (RBV), which emphasizes leveraging firm-specific resources for competitive advantage (Barney, 1991), with Crisis Management Theory, which examines organizational responses to sudden threats (Booth, 1993). We address the research gap on post-COVID recovery in Nigeria by assessing operational impacts, evaluating strategic responses, and measuring passenger satisfaction in a post-pandemic context.



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2 | Materials and Methods

This study employed a quantitative research design to systematically examine the causal relationships between COVID-19 impacts, airline recovery strategies, and operational performance metrics in Nigeria's aviation sector. The methodology was designed to enable objective measurement and statistical analysis of key variables.

The study area was Murtala Muhammed International Airport (MMIA) in Lagos, Nigeria, which comprises both international (MMA1) and domestic (MMA2) terminals. As Nigeria's busiest airport and a major hub for West Africa, it provided a representative sample of the operational challenges and passenger experiences during the recovery period.

The target population included both passengers and airline staff at MMIA. A stratified random sampling technique was used to ensure a representative sample. Based on calculations for a 95% confidence level and a 5% margin of error, a total sample size of 384 respondents was targeted. Of the 384 questionnaires administered, 292 were successfully retrieved, yielding a response rate of 76.0%, which is considered sufficient for analysis (Kothari, 2004). The sample was stratified into 274 passengers and 18 airline staff, further distributed across the domestic and international terminals to reflect passenger traffic and operational loads.

A structured questionnaire served as the primary data collection instrument. The survey was developed using validated scales from prior aviation studies and was designed to capture data across the study's objectives. It included sections on demographic information, perceptions of COVID-19's impact (measured on a 5-point Likert scale), evaluation of airline recovery strategies,

and assessment of service quality based on an adapted SERVQUAL model. Data was collected over a three-week period in October 2023 through face-to-face and electronic distribution. To ensure the instrument's reliability, a pilot test was conducted with 40 respondents, yielding a Cronbach's alpha value greater than 0.7 for all constructs.

The analytical framework employed a mixed-method approach to data analysis. Descriptive statistics were used to summarize respondent profiles. The Relative Importance Index (RII) was calculated to rank the perceived severity of pandemic impacts and the importance of recovery strategies. Analysis of Variance (ANOVA) and regression analysis were used to quantify the relationship between variables, such as the impact of traffic decline on revenue. Finally, Structural Equation Modeling (SEM) was employed to test the relationships between service quality dimensions, digital convenience, and overall passenger satisfaction. All ethical guidelines were followed, with informed consent obtained from all participants and approval granted by the University Research Ethics Committee (UREC/2024/0sz472).

3 | Results and Discussion

3.1 | Demographic Profile of Respondents

The survey captured a diverse group of airport users. Many respondents (63.7%) used the domestic MMA2 terminal. Delta Air Lines (31.0%) and Arik Air (25.2%) were the most preferred carriers. A significant portion of passengers (38.7%) were frequent flyers, having travelled more than twice in the preceding five months. The dominant age group was 31-40 years (43.5%). The primary purpose of travel was for educational/conference (38.4%) and business (28.4%) reasons, underscoring Lagos's role as a

commercial and academic hub.

Crucially, awareness of COVID-19 safety measures implemented by airlines was nearly universal among respondents (98.3%), validating the effectiveness of communication strategies.

3.2 | Impact of the COVID-19 Pandemic on the Nigerian Aviation Industry

- The study confirmed that the COVID-19 pandemic had a devastating impact on the Nigerian aviation sector. Using the Relative Importance Index (RII) to rank perceived impacts, Decline in Passenger Traffic was identified as the most severe effect (see Table 1), with an RII of 0.88.

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Table1 | Perceived Effect of COVID-19 Pandemic on the Aviation Industry in Nigeria

Effect of COVID-19 Pandemic	RII	Ranking
Decline in Passenger Traffic	0.88	1st
Revenue Losses	0.84	2nd
Job Losses and Salary Reductions	0.81	3rd
Increased Operating Costs	0.80	4th
Innovation and Adaptation	0.80	4th
Decrease in Airport Operation	0.79	5th
Flight Disruptions	0.77	6th
Changes in Passenger Preferences	0.77	6th
Dependency on Government Support	0.77	6th
Reduced Fleet Utilization	0.76	10th
Rise in Airfares	0.74	11th
Strain on Regulatory Authorities	0.72	12th

Source: Author's fieldwork (2024)

This was followed closely by Revenue Losses (RII=0.84) and Job Losses and Salary Reductions (RII=0.81). These findings align with the 'sudden threat' aspect of Crisis Management Theory (Booth, 1993), where an external shock rapidly

incapacitates core operations.

Regression analysis further quantified this relationship, revealing that the decline in passenger traffic was a strong predictor of revenue

loss ($\beta=0.823$, $p<0.001$), explaining 57.8% of the variance. A comparative analysis showed that the impact in Nigeria was more severe than in other regions; the 64.2% drop in RPK in 2020 was

significantly deeper than the African average of 55.8% and the global average of 60.0%. (See table 2).

Table 2 | Quarterly Recovery of Nigerian Air Travel (2021-2022) as Percentage of Pre-Pandemic (2019) Traffic Levels

Quarter	Domestic Routes (%)	International Routes (%)	Recovery Gap (%)	Statistical Significance
Q12021	42.6	31.2	11.4	$t (12) =4.23$, $p<0.001$
Q22022	82.6	63.5	19.1	$t (12) =5.42$, $p<0.001$
Q32022	82.6	63.5	19.1	$t (12) =5.42$, $p<0.001$
Q42022	86.9	68.7	18.2	$t (12) =4.52$, $p<0.001$

Source: Synthesized from NCAA Data (2022-2023)

This heightened vulnerability can be attributed to Nigeria's greater reliance on international traffic and pre-existing structural challenges, which limited the sector's ability to absorb the shock.

4.3 | Post-COVID-19 Recovery Strategies Adopted by Airlines

In response to the crisis, Nigerian airlines adopted several recovery strategies, demonstrating the adaptive principles of the Resource-Based View (RBV). The most critical strategy, as ranked by airline staff, was Enhanced Safety Protocols ($RII=0.854$) (see Table 3).

This focus on visible health and safety measures

was essential for rebuilding passenger trust. The second most important strategy was Digital Transformation ($RII=0.813$), involving the rapid rollout of contactless check-in, mobile applications, and other digital services to reduce physical touchpoints and improve efficiency. This was followed by the implementation of Dynamic Pricing Models ($RII=0.781$) to manage fluctuating demand and optimize yield. Another key adaptation was the diversification into Cargo Operations ($RII=0.708$), where airlines like Air Peace repurposed passenger aircraft for freight, turning a challenge into a valuable revenue stream. These strategies show how firms under pressure reconfigure their resources and capabilities to survive and find new avenues for value creation

Table 3 | Post-COVID-19 Recovery Strategies Adopted by Nigerian Airlines (RII Ranking)

Strategy	Relative Importance Index (RII)	Rank
Enhanced Safety Protocols	0.854	1
Digital Transformation	0.813	2
Dynamic Pricing Models	0.781	3
Cargo Operations	0.708	4
Diversifications		

(Barney, 1991).

4.4 | Current Performance and Recovery Trajectory

Analysis of post-pandemic data reveals a strong but uneven recovery. Domestic routes have consistently outperformed international routes, with domestic traffic reaching 86.9% of Pre-pandemic levels by Q4 2022, while international traffic lagged at 68.7% (see Table 2). This disparity was statistically significant ($p<0.001$) and reflects the resilience of domestic VFR (Visiting Friends and Relatives) traffic and the continued uncertainty surrounding international travel. This finding suggests a structural shift in the market, requiring airlines to remain agile in their route network planning. While specific yield data for Nigeria is limited, broader African trends show improving load factors and a positive revenue outlook, with IATA projecting global airline revenues to exceed \$1 trillion by 2025. This indicates that while the path to full recovery is ongoing, the strategies being implemented are moving the industry in the right direction.

4.5 | Passenger Service Quality Experiences

In the post-pandemic environment, passenger expectations have fundamentally shifted. When asked to rank service quality factors, passengers rated Customer Service (RII=0.77) and Health and Safety Measures (RII=0.76) as the most important. This underscores a move from traditional service metrics to those centered on trust, safety, and care. Digital Transformation (RII=0.72) was also highly ranked, confirming the new premium placed on seamless, contactless experiences.

These preferences were validated through Structural Equation Modeling (SEM). The analysis showed that passengers' overall

Satisfaction was strongly and directly influenced by their Perceived Safety ($\beta=0.614$), which in turn was determined by the visible safety measures airlines implemented. Similarly, Convenience, driven by the availability of digital tools ($\beta=0.692$), was a significant predictor of Satisfaction ($\beta=0.547$). This provides empirical evidence that the strategic focus on safety and digitalization by Nigerian airlines directly aligns with the primary drivers of passenger satisfaction in the new travel landscape. The model's excellent fit ($CFI=0.945$) confirms the robustness of these findings.

The discussion highlights a critical lesson for airlines: it is not enough to simply implement safety protocols; they must be visible, communicated effectively, and integrated into a customer service approach that prioritizes passenger well-being. This aligns with the "Assurance" and "Empathy" dimensions of the SERVQUAL model and reinforces the idea that in a post-crisis world, trust is a carrier's most valuable asset.

5 | Conclusion

The COVID-19 pandemic acted as both a devastating crisis and a powerful catalyst for change in Nigeria's aviation industry. This study empirically demonstrates that the sector suffered profound losses in traffic and revenue, with impacts that were more than regional and global averages, exposing its underlying vulnerabilities. However, the research also reveals a narrative of resilience and strategic adaptation. In line with the Resource-Based View and Crisis Management Theory, Nigerian airlines leveraged their available resources—from reconfigurable aircraft fleets to local market knowledge—to implement survival strategies that are now paving the way for a sustained, albeit uneven, recovery.

The findings lead to several key conclusions. First, the recovery of the Nigerian aviation sector is intrinsically linked to passenger confidence, which is primarily driven by perceptions of health and safety and the convenience afforded by digital technology. The strategies that airlines prioritized, namely enhanced safety protocols and digital transformation, directly address these core passenger demands. Second, the crisis has permanently altered market dynamics, accelerating the shift to digital platforms and creating a new hierarchy of service quality attributes where safety and customer care are paramount. Third, while the domestic market has shown remarkable resilience, the slower recovery of international routes necessitates continued agility and strategic resource allocation from airlines.

To ensure a robust and sustainable future, a concerted effort from all stakeholders is required. Airlines must continue to invest in digital infrastructure and customer-centric service models. Airport authorities must maintain and

enhance health security measures while improving operational efficiency to support the industry's growth.

Finally, the role of the government is critical; targeted policies, financial support mechanisms, and strategic infrastructure investments are indispensable for addressing the structural constraints that limit the sector's potential. This research provides a data-driven foundation for these efforts, offering actionable insights that can help transform the lessons of the pandemic into a roadmap for building a more resilient, efficient, and trusted aviation industry for Nigeria.

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