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ONLINE SERVICE INFRASTRUCTURE AND CUSTOMER PATRONAGE IN NIGERIA DOMESTIC AIR SECTOR

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ABSTRACT: *The aviation sector significantly contributes to Nigeria's economy, yet the role of online service infrastructure in shaping customer patronage within the domestic airline industry is underexplored. This study examines the impact of usability, accessibility, and reliability on customer patronage, employing the Technology Acceptance Model (TAM) as a theoretical framework. A quantitative research design was adopted, with data collected from 200 airline customers using a structured questionnaire. Data analysis was conducted using SPSS (Version 25), applying descriptive statistics and multiple regression analysis to test hypotheses. Results show that usability ($r = 0.494$, $p < 0.05$) and reliability ($r = 0.435$, $p < 0.05$) have moderate positive correlations with customer patronage, while accessibility ($r = 0.269$, $p < 0.05$) has a weaker but statistically significant relationship. The study highlights the critical role of intuitive design, consistent performance, and inclusive accessibility in enhancing customer satisfaction and loyalty. These findings provide actionable insights for improving digital service delivery in Nigeria's airline sector. Airlines are encouraged to invest in user-centered development, ensure operational reliability, and adhere to global accessibility standards to foster inclusivity and trust. Future research should explore the influence of cybersecurity and privacy features on customer trust and patronage. Additionally, longitudinal studies investigating the long-term effects of online service quality on customer loyalty could provide deeper insights into sustaining competitive advantage in the aviation industry.*

KEYWORDS: Online Service Infrastructure, Usability, Accessibility, Reliability, and Customer's Patronage.

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INTRODUCTION

The aviation industry is globally recognized as a significant sector that boosts a country's economy. In Nigeria, this industry plays a significant positive role in Nigeria's economy, contributing about ₦184.7 billion to GDP annually and supporting over 250,000 jobs (Nkpurukwe et al., 2020). While its contribution to national GDP is relatively small, the sector facilitates foreign direct investment and global trade (Stephens et al., 2014). One of the frameworks that facilitate and drive this sector is the investment in online service infrastructure. Some scholars argued that factors such as tangibility, information quality, responsiveness, trust, and personalization contribute to customers' patronage (Elias et al., 2015). They further stressed that the quality of online infrastructure in terms of usability, reliability, and accessibility determines whether a customer will patronize the airline or not. While this point of view is reasonably and rationally justifiable, others argued that the cost of an air ticket and quality of in-flight services majorly determine the repurchase or referral of a particular airline (Thaichon et al., 2016; Han et al., 2019).

Online service infrastructure is defined with varying views. Online service infrastructure refers to shared facilities that enable the development and delivery of e-government services and web-based applications (Wang et al., 2019). According to the authors, online service infrastructure refers to shared facilities that support the creation and delivery of web-based applications and e-government services by providing the necessary technological backbone. This includes servers, networks, and platforms that enable seamless data sharing, application development, and reliable service delivery to end-users.

According to Arridha et al. (2014), online service infrastructure in airlines refers to the digital systems and platforms that enable airlines to provide services and information to customers via the internet. This study emphasized that these digital systems enable airlines to deliver services to customers through flight reservations, online check-ins, flight tracking, customer support, and mobile applications, ensuring efficient operations and enhanced passenger experiences. Based on this study, factors such as tangibility, information quality, responsiveness, trust, and personalization influence customer satisfaction with airline online services.

Despite the strides in online service infrastructure, high-traffic periods during holidays and major events pose significant challenges for performance and management, posing a major problem to usability (Almeida & Menasce, 2022). These scholars opined that such periods can lead to sudden spikes in traffic volume, known as "flash crowds," resulting in slow page loading times and frustrated customers.

More so, cybersecurity threats in online airline services pose significant risks to the aviation industry. Airlines face various attacks, including frequent flyer account fraud, data breaches, denial of service attacks, and advanced persistent threats (Francy, 2015). The British Airways data breach of 2018 highlighted the vulnerabilities in the sector and the need for robust risk mitigation strategies (Enoma, 2020). This poses a reliability challenge to customers utilizing these platforms for seemingly online self-services.

Research indicates that accessibility issues in airline digital platforms persist, with studies revealing non-compliance with web accessibility guidelines and usability problems (Agrawal et al., 2019). The authors suggested that such barriers can lead to price discrimination against passengers with disabilities when s are inaccessible, despite regulations prohibiting such

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practices. Therefore, accessibility becomes a problem in online service operations in airlines when the digital platforms fail to meet the diverse needs of all users, including those with disabilities or specific technical requirements.

Globally, customers' patronage and customers' satisfaction is very important to airlines' operations. When customers have a smooth experience in terms of usability, reliability, and accessibility, they display a high sense of comfortability (Elias et al., 2015). This suggests that accurate and detailed information about flight schedules, pricing, and ancillary services fosters customer trust and loyalty (Arridha et al., 2014). Customer responsiveness marked by quick and efficient service also contributes significantly to building loyalty in a highly competitive industry. The ability to resolve customer inquiries promptly is essential for maintaining high service standards and satisfaction (Antić & Bogetić, 2024).

Although some studies have demonstrated the key role of online service infrastructure in customer patronage and satisfaction, many operational and technological issues still affect the quality of online airline services. These challenges create gaps in practice and empirical knowledge, necessitating the present study.

Statement of the Problem

The Nigerian domestic airline industry continues to face challenges such as flight delays, cancellations, poor customer service, and operational inefficiencies, which have negatively affected customer confidence and patronage (Adeji, 2025). In a highly competitive environment, airlines must provide services that are easy to use, accessible, and reliable to attract and retain customers.

Usability of airline services, particularly online booking and payment platforms, can influence customers' willingness to patronize an airline. In addition to this, accessibility to flight information, booking channels, and customer support services enhances customer convenience and satisfaction (Ali, 2023). Similarly, reliability, reflected in timely departures, consistent service delivery, and fulfillment of service promises, is also crucial for building customer trust and encouraging repeat patronage (Han et al., 2019).

Despite the importance of these factors, existing studies on Nigerian airlines have largely focused on general service quality and customer satisfaction, with limited attention given to usability, accessibility, and reliability as individual determinants of customer patronage. Furthermore, few studies have examined these three variables simultaneously within the context of Nigerian domestic airlines. This creates a conceptual and empirical gap in understanding how these dimensions influence customer patronage. Therefore, this study seeks to examine the relationship between usability, accessibility, reliability, and customer patronage of Nigerian domestic airlines.

Research Objectives

The main objective of this study is to examine the relationship between online service infrastructure and customer patronage in Nigeria's domestic air sector.

The specific objectives are to:

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1. Examine the relationship between usability and customer patronage of Nigerian domestic airlines.
2. Determine the relationship between accessibility and customer patronage of Nigerian domestic airlines.
3. Assess the relationship between reliability and customer patronage of Nigerian domestic airlines.

Research Questions

The study seeks to answer the following research questions:

1. What relationship exists between usability and customer patronage of Nigerian domestic airlines?
2. What relationship exists between accessibility and customer patronage of Nigerian domestic airlines?
3. What relationship exists between reliability and customer patronage of Nigerian domestic airlines?

Research Hypotheses

$H0_1$: There is no significant positive relationship between usability and customers' patronage of Nigerian domestic airlines.

$H0_2$: There is no significant positive relationship between accessibility and customers' patronage of Nigerian domestic airlines.

$H0_3$: There is no significant relationship between reliability and customers' patronage of Nigerian domestic airlines.

Practical Contributions and Research Novelty

This study provides valuable practical contributions to airline operators, policymakers, technology developers, and researchers in the Nigerian aviation industry. First, the findings will assist domestic airline operators in understanding the importance of online service infrastructure in influencing customer patronage. Specifically, the study demonstrates how usability, accessibility, and reliability of online platforms affect customers' willingness to patronize airline services. This knowledge will enable airline managers to make informed decisions regarding investments in digital technologies and customer service platforms.

Second, the study provides empirical evidence that can guide airlines in improving the design and functionality of their websites and mobile applications. By enhancing usability through intuitive navigation, simplified booking processes, and user-friendly interfaces, airlines can improve customer experience and increase repeat patronage.

Third, the findings will help airline operators identify the need to improve accessibility by ensuring that online platforms are compatible with various devices and accessible to diverse categories of users, including persons with disabilities. This can broaden the customer base and improve customer satisfaction.

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Fourth, the study highlights the importance of reliability in online service delivery. Airlines can utilize the findings to strengthen website performance, reduce system downtime, improve transaction security, and ensure consistent service delivery. Such improvements will enhance customer trust, loyalty, and long-term patronage.

Fifth, the study will provide useful insights to regulatory agencies such as the Nigerian Civil Aviation Authority (NCAA) and the Federal Airports Authority of Nigeria (FAAN) in formulating policies and standards aimed at promoting digital service quality and customer-centered innovations within the aviation sector.

Finally, the study contributes to the existing body of knowledge by providing empirical evidence on the relationship between usability, accessibility, reliability, and customer patronage within the Nigerian domestic airline industry.

LITERATURE REVIEW AND THEORETICAL FOUNDATION

This study applies the Technology Acceptance Model (TAM) and DeLone and McLean Information Systems Success Model (D&M IS Success Model) to understand the various dimensions of factors that drive customers' patronage to a particular airline within the Nigerian aviation industry.

TAM

The Technology Acceptance Model (TAM) is a widely used framework for understanding how individuals adopt and use technology. The model was envisioned and developed by Davis (1989), during his study titled *User Acceptance of Information Systems: The Technology Acceptance Model (TAM)* at the University of Michigan in the United States of America, as cited by Marangunić and Granić (2015).

According to the author, TAM explains user acceptance based on two main factors: *Perceived Usefulness (PU) and Perceived Ease of Use (PEOU).* Davis maintained that Perceived Usefulness (PU) measures the extent to which a person believes that using a specific technology or framework will enhance their performance or make tasks easier. The author further opined that this belief is usually followed by action, which could result in patronage. The study also contextualized the likelihood of Perceived Ease of Use (PEOU) which the author stressed the degree to which a person believes that using the technology or framework is free of effort and with ease.

This model was adopted based on the premise that it highlights the behavioral reaction of customers regarding the user experience accessing online services often provided by online service infrastructure of an airline. Based on this model, it is easier to establish that a customer's patronage of an airline is a function of the quality of the service(s) the customer experiences. The model highlights also that customers who found it difficult accessing the services of an airline will most likely alternate their choice to an airline the customer believes better service experience will be offered.

This model, however, met stiff criticism by some scholars. The model reduces technology adoption to Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) while neglecting

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other critical social, cultural, and organizational factors that influence adoption (Bagozzi, 2007). The critics argue that TAM oversimplifies complex decision-making processes, particularly in real-world settings where multiple factors (such as cultural norms and economic conditions) play a role. The critics further argue that the model can only be applied in contexts where customers assume absolute reactions based on service quality, holding other variables or factors constant.

TAM fails to account for the differences in cultural contexts towards technology adoption behaviors, such as collectivist vs. individualist societies (Straub et al., 2019). The critics further contended that the model assumes relatively simple technologies and does not account for highly complex or evolving systems.

According to Venkatesh et al. (2023), TAM is often applied as a *snapshot model*, focusing on initial adoption rather than long-term usage or post-adoption behaviors. These critics argue that the model does not explore how users' perceptions (PU and PEOU) may evolve over time as they gain experience with the technology. The scholars also argue that initial adoption drivers are often different from those influencing long-term engagement with a technology, and the model does not adequately address this shift.

Delone and Mclean Information Systems Success Model

The DeLone and McLean Information Systems Success Model (D&M IS Success Model) was developed by Delone and McLean (1992). The theory was developed to explain the factors that determine the success of information systems. The model assumes that the quality of an information system influences users' satisfaction and usage intentions, which subsequently lead to positive individual and organizational outcomes. The model identifies key dimensions of information system success, including system quality, information quality, service quality, use, user satisfaction, and net benefits. System quality refers to the performance characteristics of a system such as usability, accessibility, reliability, ease of use, and response time. The theory posits that when users perceive a system as reliable, accessible, and easy to use, they are more likely to use it continuously and derive value from it.

The theory is relevant to this study because the online service infrastructure of Nigerian domestic airlines constitutes an information system through which customers access airline services. The dimensions of usability, accessibility, and reliability examined in this study are key indicators of system quality. According to the model, improvements in these dimensions will enhance customers' experiences with airline websites and mobile applications, leading to increased satisfaction, trust, and ultimately greater customer patronage. Therefore, the model provides a useful framework for explaining how online service infrastructure influences customer patronage in the Nigerian domestic airline sector.

Despite its popularity, the model has attracted several criticisms. Seddon (2019) argued that the model confuses system use with the benefits derived from system use and fails to clearly establish causal relationships among its constructs. Similarly, Petter, DeLone, and McLean (2018) noted that the model places greater emphasis on technological factors while paying less attention to environmental, social, and organizational influences that may affect system success. Critics have also argued that the model assumes a linear relationship among variables, whereas user satisfaction and usage behavior may be more dynamic and reciprocal in practice.

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However, these criticisms do not diminish the applicability of the model to the present study. The study addresses these limitations by focusing specifically on the system quality dimensions of usability, accessibility, and reliability, which are directly observable and measurable within airline online service platforms. Furthermore, the study complements the DeLone and McLean Model with the Technology Acceptance Model (TAM), thereby incorporating users' behavioral perceptions and intentions alongside system quality factors. This integration provides a more comprehensive explanation of customer patronage in the Nigerian domestic airline industry.

Usability

The concept of usability is mostly identified with web design technocrats. It is the ease with which users can interact with and navigate a website to achieve their goals efficiently and effectively and derive satisfaction (ISO, 2018). It is a critical aspect of web design that focuses on user satisfaction, functionality, and accessibility. A website with high usability ensures a positive user experience (UX), increasing engagement, trust, and return visits. The ISO 9241-11 framework defines usability in terms of three factors: (i) *Effectiveness—the* accuracy and completeness with which users achieve their goals; (ii) *Efficiency—the* resources expended in relation to the results achieved; and (iii) *Satisfaction—the enables* comfort and acceptability of the system to its users.

Several scholars have identified the key components of website usability. In other words, these are factors that enable a customer to access an airline website online with ease. According to Nielsen (2019), navigation is a key component that constitutes usability. It refers to the ease with which users can move through a website and locate information. Clear menus, logical page hierarchies, and breadcrumb trails enhance navigation usability. Palmer (2022) identified *content quality* as one of the dimensions that enable usability to be customer-friendly and influences customer patronage. The author maintains that the content should be relevant, accurate, and easy to understand. Poorly structured or cluttered content reduces usability.

According to Cyr et al. (2010), website design *and aesthetics* enable a user or customer to enjoy a smooth experience on the website. The scholars opined that design involves visual clarity, appropriate use of fonts and colors, and overall layout. A visually appealing website with an intuitive design fosters engagement and usability. *Loading speed* is also identified as one of the components of workable usability. Nah (2014) established that page load time is a critical usability factor. The author submitted that slow loading often frustrates users, leading to abandonment. *Mobile Responsiveness*: Especially the increase in the use of mobile devices by young people between the ages of 14 and 30, a website must adapt to different screen sizes and input methods to maintain usability (Kim & Forsythe, 2018).

Pee et al. (2018) conducted research on *the signaling effect of usability on repurchases intention;* the findings suggest that usability impacts not just the pre-purchase stage but also repurchase behavior. This indicates that usability contributes to customer retention, a key aspect of customer patronage.

Accessibility

One of the frequent questions that come to mind when discussing online service infrastructure is whether or not the service is sensitive can be accessible by people with disabilities. Accessibility refers to the ease and efficiency with which diverse users can utilize web services (Alapetite, 2006). It encompasses designing that are usable by all people, particularly those

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with disabilities and older individuals, across various contexts and technologies (Petrie et al., 2015). Despite the availability of assistive technologies and accessibility guidelines, many sites still fail to achieve universal accessibility (Brown & Hollier, 2015). Factors influencing accessibility and acceptance by visually impaired users include perceived convenience, reliability, and vision impairment level (Sirikitsathian et al., 2017).

Having foreseen the problem of accessibility, some countries have enacted laws that help to fight this problem. The UK's Equality Act 2010 highlights the importance of presenting information in an understandable way to reduce accessibility barriers (Equality Act, 2010). This involved using plain language and avoiding unnecessary jargon to ensure that content is easy to read. Also, providing predictable navigation and interface layouts to avoid confusing users are some of the remedial precautions that developers can leverage to encourage a smooth online experience for all users.

Lazar et al. (2015) conducted a study on *ensuring digital accessibility through process and policy. The* study found a significant positive relationship between accessibility and customer satisfaction and trust, with accessible sites being more likely to retain customers. A well-designed, accessible site ensures that all users, including those with disabilities, can easily navigate the site, book flights, check in, and access relevant information.

Reliability

Another dimension that has been a major concern with online services infrastructure is the issue of reliability. Customers would ordinarily prefer to patronize an airline that is reliable, safe, and user-friendly. "Reliability" refers to the dependability and consistency of a website in delivering its intended functions without failures, errors, or interruptions (Roy & Butaney, 2014).

In the context of airline operations, reliability is a critical aspect of online service infrastructure, ensuring that customers can effectively book flights, check in, track flight statuses, and access other essential services (W3C, 2023). A reliable website is vital for maintaining customer trust, streamlining operations, and minimizing disruptions in a highly competitive and time-sensitive industry and accounts significantly for customers' repeat purchases in the airline industry (Wali, 2013).

Kim et al. (2019) investigated the significance of reliability and its impact on consumer trust in e-commerce. They found that a functional, secure, and consistently operational website fosters trust, which is a critical antecedent of customer loyalty. This trust, in turn, influences the likelihood of customers revisiting and making repeat purchases, a key metric of patronage.

Customer Patronage

Customer patronage in airline operations is significantly influenced by service quality, satisfaction, and relationship management. Service failures and subsequent recovery efforts can profoundly impact customer satisfaction and future patronage (Mostert et al., 2009). The scholars further posited that airlines that provide better customer satisfaction tend to attract more passengers and generate positive word-of-mouth, leading to increased traffic and goodwill. Satisfied customers are more likely to maintain or strengthen their relationship with the airline and continue flying with them, while dissatisfied customers may reduce their patronage or cease flying with the airline altogether.

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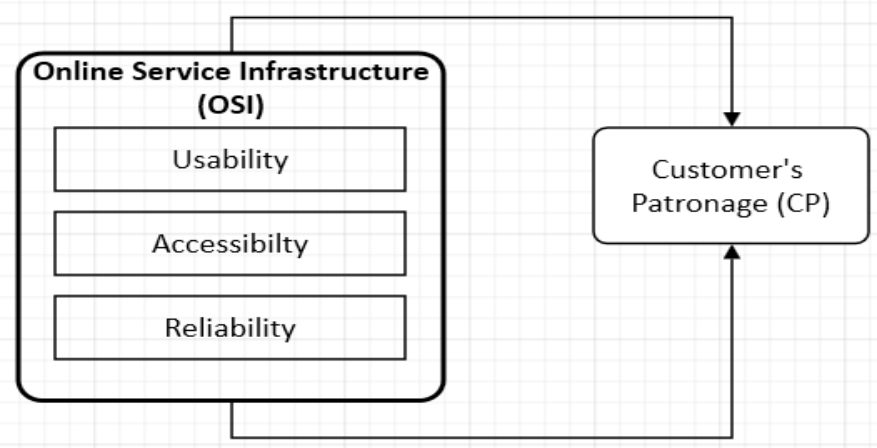
Kotler and Keller (2016) argued that price is a critical determinant of customer decision-making, especially in highly competitive industries like aviation. This aligns with findings by Francis et al. (2016), who highlighted how low-cost carriers (LCCs) have disrupted traditional airline markets by emphasizing affordability over luxury. Their analysis suggested that pricing strategies directly impact customer retention, particularly in price-sensitive segments. Airline operators that can meet customer expectations of service performance improve profit compared to those that do not meet customer satisfaction (Nkpurukwe et al., 2022).

A study by Chang and Yeh (2002) highlighted the role of customer satisfaction in shaping repeat patronage. They found that a positive travel experience, including easy booking processes, seamless check-in, and courteous staff, has a lasting effect on customer loyalty. The researchers emphasized that customer satisfaction mediates the relationship between perceived service quality and patronage.

The conceptual diagram measures the relationship between each independent variable and the dependent variable as shown below.

Figure 1: Conceptual diagram of online service infrastructure and customer's patronage



Source: *Elias, Mohamed, and Arridha (2015).*

METHODOLOGY

This study adopts a quantitative research design because the design enables the researcher to test hypotheses. The study population comprised employees and customers who used domestic airlines in Nigeria. The sample size of 200 was selected for the study based on a random sampling technique. This technique was selected because it reduces selection bias by giving every individual in the population an equal chance of being chosen, thereby giving fair representation of the population and increasing the reliability of conclusions.

The instrument for data collection is questionnaire-based with five-point Likert scale (structured (1=agree to 5=strongly disagree). Descriptive statistics were analyzed using mean and standard deviation, while the inferential statistics were analyzed using multiple regression analysis. To check the reliability, Cronbach's alpha was calculated to assess the internal

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consistency of the questionnaire items. A threshold of 0.70 or higher was used to indicate acceptable reliability.

Linear Representation of the Variables under Study

The aim of this section is to quantify the strength of these independent variables under consideration.

$$CP = \beta 0 + \beta 1(WU) + \beta 2(WA) + \beta 3(WR) + \epsilon$$

Where:

- CP: Customer ‘s Patronage
- β0: Constant term (baseline level of patronage without the factors).
- β1, β2, β3: Coefficients showing the impact of each factor on the customer's patronage.
- WU, WA, WR: Independent variables (Usability, Accessibility, and Reliability).
- ϵ: Error term accounting for unexplained variations.

RESULTS

This section presents the results of the study using descriptive and inferential statistics. Descriptive statistics were used to summarize respondents' views on usability, accessibility, reliability, and customer patronage, while inferential statistics were employed to test the hypotheses and determine the significance of the relationships among the study variables.

Table 1: Descriptive Statistics

Variables	Mean	Std. Deviation
usability	2.936	.378
accessibility	3.017	.350
reliability	3.083	.345
Customer’s patronage	3.577	.298

Source: *SPSS V25, 2024*

Table 2: Multiple Regression Results

Variables	B	Std. Error	Beta (β)	t-value	p-value
Constant	1.245	0.321	-	3.878	0.000
Usability	0.412	0.085	0.394	4.847	0.000
Accessibility	0.176	0.072	0.183	2.444	0.016
Reliability	0.351	0.081	0.328	4.333	0.000

Source: *SPSS Computation Result*

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The multiple regression results indicate that usability, accessibility, and reliability have positive and significant effects on customer patronage in the Nigerian domestic airline sector. The model constant of 1.245 ($t = 3.878$, $p < 0.05$) suggests that even in the absence of the explanatory variables, customer patronage would maintain a positive baseline level.

Specifically, usability recorded a coefficient value of $B = 0.412$ with a standardized coefficient of $\beta = 0.394$ ($t = 4.847$, $p = 0.000$). This implies that a one-unit improvement in usability would increase customer patronage by 0.412 units, holding other variables constant. The result further indicates that usability is the strongest predictor of customer patronage among the variables examined. Therefore, airline operators that provide user-friendly websites, easy navigation, and seamless booking processes are likely to experience increased customer patronage.

Similarly, accessibility has a positive coefficient of $B = 0.176$ and a standardized coefficient of $\beta = 0.183$ ($t = 2.444$, $p = 0.016$). This result suggests that improvements in the accessibility of airline online platforms, such as compatibility across devices and ease of access to information and services, significantly enhance customer patronage. Although accessibility exerts the least influence among the three predictors, its effect remains statistically significant.

Furthermore, reliability recorded a coefficient value of $B = 0.351$ with a standardized coefficient of $\beta = 0.328$ ($t = 4.333$, $p = 0.000$). This indicates that a one-unit increase in reliability would lead to a 0.351-unit increase in customer patronage. The finding demonstrates that customers are more likely to patronize airlines whose online platforms consistently perform as expected, are available when needed, and provide dependable services without errors or interruptions.

Overall, the findings reveal that usability, reliability, and accessibility significantly influence customer patronage, with usability exerting the greatest effect, followed by reliability and accessibility. The results therefore provide evidence that enhancing the quality of online service infrastructure can substantially improve customer patronage among Nigerian domestic airlines.

Table 3: Model Summary

Statistics	Value
R	0.648
R Square (R^2)	0.420
Adjusted R^2	0.411
Standard Error of Estimate	0.286
F-Statistic	47.282
Sig. F	0.000
Sample Size (N)	200

The model summary results indicate that there is a moderately strong positive relationship between the independent variables (usability, accessibility, and reliability) and customer patronage, as evidenced by the correlation coefficient of $R = 0.648$. This suggests that the combined effect of the three dimensions of online service infrastructure is strongly associated with customer patronage in the Nigerian domestic airline sector.

The coefficient of determination ($R^2 = 0.420$) shows that 42.0% of the variation in customer patronage is explained by usability, accessibility, and reliability, while the remaining 58.0% is

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attributable to other factors not included in the model. The Adjusted R^2 value of 0.411 further confirms that after adjusting for the number of predictors in the model, approximately 41.1% of the variation in customer patronage is explained by the independent variables. This indicates that the model possesses a reasonable explanatory power.

The Standard Error of Estimate of 0.286 suggests a relatively low level of prediction error, indicating that the observed values of customer patronage are reasonably close to the values predicted by the regression model. Furthermore, the F-statistic of 47.282 with a corresponding significance value of 0.000 demonstrates that the overall regression model is statistically significant at the 5% level. This implies that usability, accessibility, and reliability jointly have a significant effect on customer patronage and that the model provides a good fit for the data.

Table 4: Hypotheses Testing Summary

Hypothesis	Beta (β)	p-value	Decision
H_{01}: There is no significant positive relationship between usability and customer patronage of Nigerian domestic airlines.	0.394	0.000	Rejected
H_{02}: There is no significant positive relationship between accessibility and customer patronage of Nigerian domestic airlines.	0.183	0.016	Rejected
H_{03}: There is no significant relationship between reliability and customer patronage of Nigerian domestic airlines.	0.328	0.000	Rejected

DISCUSSION OF FINDINGS AND CONCLUSION

The findings from H01 reveal that usability significantly contributes to customer patronage in Nigeria's domestic airline sector. The regression result ($\beta = 0.394$, $p = 0.000$) indicates that usability is the strongest predictor of customer patronage among the dimensions of online service infrastructure examined in this study. This suggests that customers are more likely to patronize airlines whose websites and mobile platforms are easy to navigate, user-friendly, and efficient in facilitating transactions. The finding supports the Technology Acceptance Model (TAM), which posits that perceived ease of use positively influences users' acceptance and continued use of technology. When customers find airline online platforms easy to use, they develop favorable attitudes towards the airline, which subsequently increases patronage intentions. The finding is consistent with the study of Pee et al. (2018), who found that usability significantly enhances repurchase intention and customer retention in digital service environments. Recent studies have similarly shown that intuitive digital interfaces improve customer satisfaction, trust, and loyalty, particularly in service industries where online interactions constitute a major component of service delivery (Alalwan, 2020; Dwivedi et al., 2021).

The findings from H02 further reveal that accessibility has a positive and significant influence on customer patronage ($\beta = 0.183$, $p = 0.016$). Although accessibility emerged as the weakest predictor among the variables studied, its significance suggests that customers value the ability to conveniently access airline services across different devices and platforms. This finding supports the DeLone and McLean Information Systems Success Model, which identifies system quality as a critical determinant of user satisfaction and system usage. Accessible online platforms enable customers to obtain information, book flights, and interact with airlines

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without unnecessary barriers, thereby encouraging patronage. The result corroborates the findings of Lazar et al. (2015), who reported that accessibility enhances user engagement and service utilization. Similarly, recent studies have demonstrated that mobile responsiveness, cross-platform compatibility, and inclusive digital design positively influence customer experiences and usage intentions in electronic service environments (Ameen et al., 2021; Shareef et al., 2022). The relatively lower influence of accessibility may indicate that customers now consider accessibility a basic requirement rather than a distinguishing factor when choosing airlines.

The findings from H03 also reveal that reliability has a significant positive effect on customer patronage ($\beta = 0.328$, $p = 0.000$). This indicates that reliable online service infrastructure characterized by system stability, minimal downtime, transaction accuracy, and consistent performance significantly enhances customer patronage. The finding aligns with both the Technology Acceptance Model and the DeLone and McLean Information Systems Success Model. TAM suggests that reliable systems increase perceived usefulness, while the DeLone and McLean model identifies reliability as an important component of system quality that drives user satisfaction and continued usage. The result is consistent with Kim et al. (2009), who found that reliability enhances customer trust and loyalty through dependable service delivery. More recent studies have also established that reliability remains a key determinant of customer trust, satisfaction, and continued use of digital platforms, particularly in industries where transactions involve financial commitments and time-sensitive decisions (Rahi et al., 2021; Al-Kwifi et al., 2023).

Furthermore, the model summary results reveal that usability, accessibility, and reliability jointly explain 42.0% of the variation in customer patronage ($R^2 = 0.420$), while the remaining 58.0% is explained by factors outside the model. The significant F-statistic ($F = 47.282$, $p = 0.000$) confirms that the overall model is statistically significant and suitable for predicting customer patronage. This finding suggests that although online service infrastructure is a critical determinant of customer patronage, other factors such as ticket pricing, service quality, airline reputation, flight availability, safety records, customer relationship management, and service recovery mechanisms also influence customers' patronage decisions.

Despite these findings, the implementation of the study's recommendations may be constrained by several challenges. Financial limitations may hinder airlines from investing in advanced digital infrastructure and continuous system upgrades. In addition, inadequate technological infrastructure, unstable internet connectivity, cybersecurity threats, and frequent power disruptions may affect the reliability and accessibility of online platforms. Organizational resistance to technological change and inadequate technical expertise among employees may also limit the effective implementation of digital service improvements. Consequently, while improving usability, accessibility, and reliability can enhance customer patronage, airline operators must simultaneously address these structural and operational challenges to maximize the benefits of online service infrastructure.

Based on these findings, the study recommended the following:

i. Airlines should focus on improving the design and functionality of their websites. These include ensuring intuitive navigation, clear content layout, and seamless booking processes.

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ii. Airlines should prioritize maintaining reliable and error-free websites. This can be achieved through regular performance testing, minimizing downtime, and ensuring fast page load speeds.

iii. Airlines should ensure their websites are accessible to all users, including individuals with disabilities and those using mobile devices.

Future research could explore the impact of website security and privacy features on customer trust and patronage in the airline sector. Given the increasing concerns about cybersecurity, understanding how customers' perceptions of data security influence their booking decisions would provide valuable insights for improving website functionality and customer confidence.

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