Trends and Prevalence of Civil Aviation Crimes: A Study of Nigerian International Airports

Monsurat Isiaka[1], Ismail Adua Mustapha[2], Moshood Issah[3], Ismail Ayatullah Nasirudeen[4,*],
and Wasiu Bolaji Sheu[5]

[1]Department of Criminology and Security Studies, University of Ilorin, Nigeria
[2]Department of Business Law, University of Ilorin, Nigeria
[3]Department of Sociology, University of Ilorin, Nigeria
[4]Department of Sociology, University of Alberta, Canada
[5]Department of Criminology and Security Studies, University of Ilorin, Nigeria

*Corresponding to author E-mail: nasirude@ualberta.ca

Abstract

This study explores the trends and prevalence of crimes within Nigeria's aviation industry, a sector not immune to the country's broader security or safety challenges. Despite the prevalence of crimes both in-flight and at airports, there is a notable lack of research into these issues. This study seeks to address this knowledge gap. This study design is a survey, with the population consisting of officials and passengers present at selected Nigerian airports. Six international airports, one from each geopolitical zone in Nigeria, were chosen for the study. The Taro Yamani formula was used to determine a sample size of 400, which was then evenly divided into two groups. The responses from these groups showed significant variations. The findings reveal that Nigerian airports are beset by a range of security and crime issues, including corruption among airport officials, theft, destruction of baggage/luggage, extortion, armed robbery, drug trafficking, insider threats, criminal conspiracy, money laundering, prostitution, human trafficking, among others. The study also identifies several factors contributing to the high rate of aviation crimes at Nigerian airports, such as the dilapidating technologies for proper checking of passengers, poor security check at the airport entrance, lack of organization in the airport, poor monitoring mechanisms, and corruption among officials. The study concludes with a call for efforts to especially curb the systemic corruption among airport officials, as this issue could undermine other physical security measures. This study represents a significant step towards improving the security and safety of Nigeria's aviation industry.

Keywords: Aviation, Prevalence, Security, Aviation Industry, Crimes, Airports

1. Introduction

The significance of air transportation is underscored by its critical role in the effective development and utilization of air transport, as highlighted by existing studies (Sun, Wandelt, & Zhang, 2020; Tolcha, Bråthen, & Holmgren, 2020). Airports, which provide robust facilities for carriers and host commercial activities, are the backbone of these operations (Lugard, 2020; Ogunleye, Oladapo, & Patunola-Ajayi, 2022). They attract investments from both government and private organizations, particularly in developing countries like Nigeria, to meet modern passengers' needs (Ogunleye et al., 2022). Security is a fundamental human need after physiological needs and represents both the absence of danger and the presence of protection against threats (Agbakosi, & Akande, 2019; Essien, & Fabian, 2021; Nwaogbe, Ejem, Ogwude, Idoko, & Pius, 2018; Omoleke, 2012; Phillips, 2019). It has been studied and analyzed by various disciplines, with the philosophical point of view positing it as anthropocentric in nature and a prerequisite for human existence. However, Nigerian airports are grappling with safety and security issues.

The aviation industry faces security challenges, with various crimes committed at airports and on planes. These crimes range from assault on crew members to possession of weapons or explosives on a plane, including interference with crew members or attendants, hijacking and seizing control of a plane in flight, interference with airport security screeners, and threats or false information, among others (Fagbola, & Popoola, 2016). Nigerian airports have recently experienced an increase in crimes and security breaches, symptomatic of general security

lapses in the country, possibly due to corruption and weak law enforcement (The Guardian, 2022). The aviation industry, heavily regulated worldwide, is expected to have robust security measures (The Guardian, 2022). However, these airports are notorious for violating security standards set by the International Civil Aviation Organization (ICAO) (The Guardian, 2022).

Instances of robbery attempts and thefts have been reported at various facilities, including Seymour Aviation Multi-Level Car Park and Murtala Muhammed International Airports, Lagos (Nnodim, 2022; The Guardian, 2022). These incidents involve both commercial and private aircrafts, with belongings of passengers, including those of popular musicians, being stolen (Inyang, 2017; Oyebade, 2018; Sasu, 2018). These security breaches can be attributed to improper implementation of aviation security laws, operational inefficiency, and negligence among security operatives and airport workers. Despite being privately owned, Seymour car park facility is expected to take full responsibility for its security situations (The Guardian, 2022). The Federal Airports Authority of Nigeria (FAAN), the airport operator, and the Nigeria Civil Aviation Authority (NCAA) (2015), the industry regulator, have been criticized for their ineffectiveness in ensuring maximum security and preventing criminal activities at the airports (The Guardian, 2022).

Currently, Nigeria has 32 airports, 11 of which are international, and approximately five of them are operational (Okafor, 2022; Onyekachi, 2024). FAAN operates 26 of them, including a state-owned airport in Akwa-Ibom State and the Muritala Muhammed Airport Two, a private-public partnership airport managed by Bi-Courtney Aviation Services Ltd. (Okafor, 2022). The country also has several airstrips or airfields, constructed by the Nigerian Air Force and multinational oil companies (Okafor, 2022). To ensure airport security, the Nigerian government has adopted a variety of national and international aviation security conventions, laws, and regulations such as the 2010 Beijing Convention (ICAO, 2011a), the Annex 17 to the Chicago Convention 1974 (ICAO, 2011b), the Laws of The Federation Nigeria 2004 (2004), the Chicago Convention on International Civil Aviation 1944 (ICAO, 2006), the Nigeria Civil Aviation Act (2022), and the Nigeria Civil Aviation Regulations 2015 (NCAA, 2015). The government has invested in security infrastructures, such as motorized surveillance equipment and visual and thermal cameras and initiated the process for deploying the Advance Passenger Information and Passenger Name Record systems to identify potential terrorists and criminals at airports (Okafor, 2022; Nnodim, 2022).

Despite these measures, Nigerian airports recorded over 1,000 incidents of infiltration in 2022 (Okafor, 2022). These airports have been grappling with escalating security challenges, including petty thieves, touts, corrupt immigration and National Drug Law Enforcement Agency (NDLEA) officers, and accomplices in illicit trades. James (2021) reported an increase in aviation safety and security incidents, crime, and corruption at the airport, including insider participation in wildlife and other types of trafficking at Lagos Airport, and extortion of passengers by security officials. Touting activities, particularly at Lagos Airport, have led to dissatisfaction among many travelers or passengers, contributing to a negative image of the aviation industry. Touts pose a security risk to the country's airports and travelers, as they can be bribed to carry out or assist in criminal activities, to the detriment of passengers (Nwaogbe et al., 2018; Pius, Nwaogbe, Opeoluwa, & Guenane, 2017). Smuggling has also reportedly been common at Nigerian airports. For example, the Economic and Financial Crimes Commission (EFCC) seized large amounts of foreign currencies at airports from some Bureau De Change (BDC) operators, alleging that they were used as instruments of money laundering (Odunsi, 2022).

Table 1 Arrests of suspected drug smugglers in airports in Nigeria 2018-2019

Airport	2018	2019
Muritala Muhammed International Airports	89	104
Nnamdi Azikiwe International Airports	14	4
Mallam Aminu Kano International Airport	9	4
Enugu Airport	3	4
Port Harcourt International Airport	4	0

Source: Statista (2022)

Drug trafficking is a prevalent crime at Nigerian airports, with an increasing trend (Olugbode, 2022; Statista, 2022). In 2019, the Muritala Muhammed International Airports in Lagos State recorded the highest number of arrests of suspected drug smugglers, with 104 arrests, an increase from the previous year's 84 arrests. Meanwhile, the Nnamdi Azikiwe International Airports in Abuja recorded 14 arrests in 2018 and 4 in 2019. Other airports reported fewer than 10 arrests in both years. No arrests were reported at the Port Harcourt International Airport in 2019. In connection with drug smuggling, 11 members of trafficking syndicates were arrested at Lagos and Abuja airports (Olugbode, 2022). Reports indicate connivance between security operatives and airport officials in committing various crimes (Okafor, 2022). Despite stringent security measures, individuals have gained access to terminals after bribing security operatives. Bribes range from N500 to N1,000 for entry into terminals and higher amounts for moving banned items (Okafor, 2022). Two immigration officers were banned from airports for extorting N8,000 from a 14-year-old passenger. Another man was extorted of $100 due to his expired Nigerian passport (Nnodim, 2022).

The FAAN arrested 90 touts for extortion at the Muritala Muhammed Airport, Lagos, and Nnamdi Azikiwe International Airport, Abuja. They were involved in various criminal activities such as producing fake COVID-19 test results, touting, unauthorized entry, trespass, illegal facilitation, forgery, loitering, theft, public nuisance, and arguments. Some of those arrested were airport officials (Udegbunam, 2022). There have been a few reported cases of stowaways, including a 14-year-old boy found unconscious inside an aircraft at the Lagos Airport (Oyero, 2022). Terrorists have also infiltrated some Nigerian airports, with bandits attacking the runaway axis at the Kaduna Airport but were repelled by anti-banditry military personnel and the FAAN aviation security department (BBC Pidgin, 2022). While there are prevalent security and crime challenges at Nigerian airports (Okafor, 2022; Udegbunam, 2022), there is a dearth of empirical studies on them. Most of the existing knowledge on crimes in the aviation industry is obtained through grey literature such as news publications and other official documents. This study aims to fill this gap by exploring the prevalence of crimes within the aviation industry in Nigeria.

2. Objectives
The following objectives guide this study:
1) To explore the various types of crimes experienced by people at Nigerian airports.
2) To explore various types of crimes witnessed by people at Nigerian airports.
3) To examine the causes of aviation crimes in Nigeria.
4) To analyze the differing perceptions concerning the types and causes of crimes at Nigerian airports, with a particular focus on variations based on ethnicity and gender.

3. Materials and Methods
3.1 Theoretical Framework: Social Disorganization Theory and Routine Activity Theory
This study applies the Social Disorganization Theory (SDT) and the Routine Activity Theory (RAT) to examine the trends and prevalence of civil aviation crimes in Nigerian airports. SDT suggests that criminal behavior arises from a community's failure to realize common values and maintain effective social controls. Conversely, RAT posits that a crime occurs when a motivated offender, a suitable target, and the absence of a capable guardian coincide. These theories are integrated and applied to this study's context (see Figure 1). The adoption of both theories is motivated by the observed security inadequacies at Nigerian airports, which result from weak societal control mechanisms and increase individuals' susceptibility to criminal activities. The study seeks to understand the factors contributing to the prevalence of civil aviation crimes in Nigerian airports comprehensively.

3.1.1 Social Disorganization Theory (SDT)
SDT provides a significant theoretical framework for understanding the relationship between community characteristics and crime in urban areas (Kubrin, & Wo, 2015). Unlike theories that attribute crime to individual characteristics, SDT emphasizes the role of community types in either promoting or deterring crime and juvenile delinquency. This theory, first proposed by Shaw and McKay (1942; 2010/1969), suggests that environmental conditions of a community, rather than individual traits, impact crime rates. SDT posits that community characteristics, such as poverty, racial diversity, and residential instability, contribute to social disorganization,

leading to criminal activity (Kubrin, & Wo, 2015; Sampson, & Groves, 1989). Social disorganization is defined as a community's inability to realize common values and maintain effective social regulations (Kubrin, & Weitzer, 2017). Kornhauser (1978) suggests that the first sign of social disorganization is when a community's structure and culture fail to reflect its members' values. A socially organized community is characterized by solidarity, cohesion, and integration, while a socially disorganized community lacks these attributes. SDT suggests that communities with less informal social control, a characteristic of social disorganization, tend to have higher crime rates. While community characteristics like poverty or residential instability are associated with crimes, these factors do not directly cause crimes. Instead, they indirectly link to crimes through community mechanisms such as informal social control. Thus, these factors are important due to their effects on the mediating mechanisms of social disorganization (Kubrin, & Wo, 2015). The fundamental causal model of SDT can be summarized as follows: community characteristics influence social connections, which in turn influence an informal social control, and ultimately, a crime.

3.1.2 Routine Activity Theory (RAT)

RAT suggests that a crime happen when a motivated offender identifies a suitable target in the absence of a capable guardian (Mustaine, & Tewksbury, 2000). The definition of a suitable target can vary depending on the crime and its context (Semprevivo, & Hawdon, 2021). Targets can be non-human, such as valuable items for burglary (Puente, & Hernández, 2022), or humans, such as a person flaunting valuable possessions. Large-scale societal changes can influence the number of suitable targets perceived by criminals (Cohen, & Felson, 1979), but an offender's evaluation of a suitable target largely depends on his/her perceptions (Williams, Levi, Burnap, & Gundur, 2019). Potential guardians are not limited to people (Semprevivo, & Hawdon, 2021). The presence of security measures or physical barriers can deter an offender. For instance, urban planning and neighborhood layout can design out crime (Chan, & Gibbs, 2022). This is relevant to this study, as airports have motivated offenders looking for opportunities to rob passengers. However, the effectiveness of these opportunities depends on the level of airport security and the obsolescence of available technologies (Okafor, 2022).

3.1.3 Theoretical Integration

This study uses SDT and RAT to analyze the trends and prevalence of civil aviation crimes at Nigerian airports. It follows the precedent set by studies such as Rountree, Land, and Miethe (1994), Smith, Frazee, and Davison (2000), Weisburd, Lawton, and Ready (2012), and Wilcox, Land and Hunt (2003). The study argues that the increasing rate of crimes in Nigerian airports reflects social disorganization in routine activities. SDT suggests that aviation crime prevalence arise from the absence of social control mechanisms, weakened social institutions, and law and order breakdowns. These conditions are common in communities characterized by chronic poverty, unemployment, overpopulation, illiteracy, and residential instability. Such conditions act as catalysts for motivated offenders, leading to crimes against suitable targets. These targets can include valuable items, forged documents, wealthy passengers, and illegal substances, especially in the absence of effective social control mechanisms or capable guardians. Therefore, this study provides a comprehensive understanding of the factors contributing to the prevalence of crime in Nigerian airports. Figure 1 presents a concept map illustrating an integrated theoretical explanation of these factors.
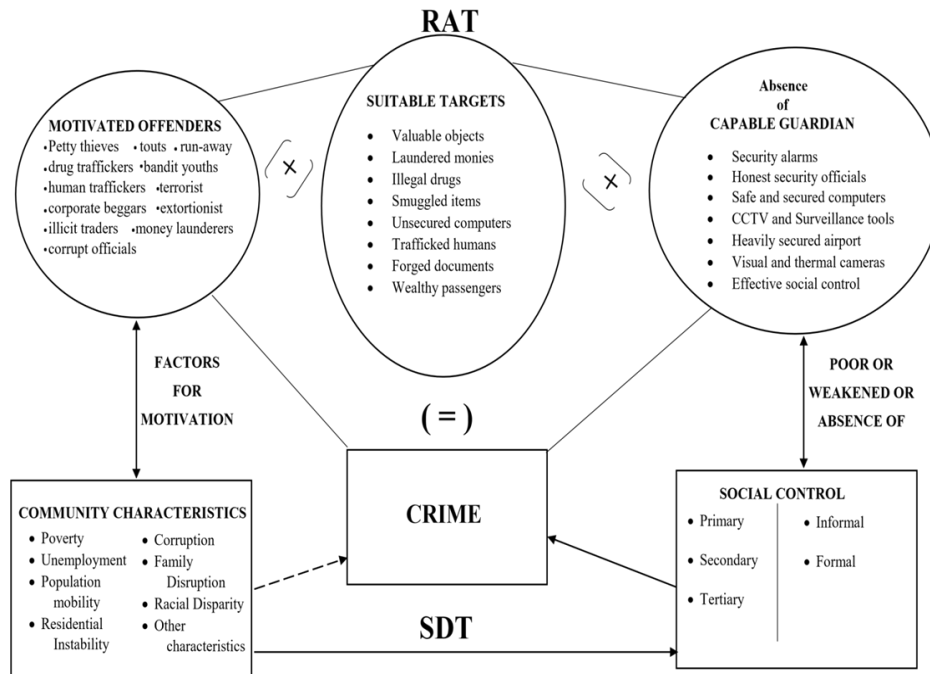
Figure 1 Concept Map
Source: Developed by the researchers

3.2 Methodology

This study employs a survey research design to examine the perspectives of airport officials and passengers at selected Nigerian international airports. Due to the absence of official records, the population size and sampling frame could not be precisely defined. To address this, a purposive non-probability sampling technique was applied, resulting in a sample size of 400 respondents (i.e., n = 400), calculated using the Taro Yamani formula. These respondents were drawn from six international airports, each representing one of Nigeria's six geopolitical zones: North-Central (NC), North-East (NE), North-West (NW), South-East (SE), South-South (SS), and South-West (SW). This strategic selection aimed to ensure equal representation across all Nigerian States and ethnic groups, thus capturing the full diversity and variability within the population. By employing quota sampling and selecting airports based on these geopolitical zones, the study aimed for its findings to be generalizable and reflective of characteristics pertinent to other airports not included in the research. The sample was evenly split into two groups of 200 respondents each, comprising airport officials and passengers. The decision to focus on a sample size of 400 enhances the credibility and generalizability of the findings, particularly in quantitative studies, where a minimum sample size of 387 is often recommended for infinite populations. It is important to note that a quota sampling technique was employed due to the unavailability of a comprehensive sampling frame, leaving researchers without access to accurate data on the number of officials and passengers at the selected airports.

Table 2 Sample selection

Airports	State (Zone)	Sample distribution
Muritala Muhammed International Airports (MMIA)	Lagos (SW)	Officials (50) and Passengers (50) = 100
Nnamdi Azikiwe International Airports (NAIA)	Abuja (NC)	Officials (50) and Passengers (50) = 100
Mallam Aminu Kano International Airport (MAKIA)	Kano (NW)	Officials (25) and Passengers (25) = 50
Maiduguri International Airport (MIA)	Borno (NE)	Officials (25) and Passengers (25) = 50
Port Harcourt International Airport (PIA)	Rivers (SS)	Officials (25) and Passengers (25) = 50
Akanu-Ibiam International Airport (AIA)	Enugu (SE)	Officials (25) and Passengers (25) = 50
Total		**Officials (200) and Passengers (200) = 400**

Table 2 presents the sample selection for this study. As earlier stated, the total sample size was 400 respondents, divided equally between airport officials and passengers across six international airports. However, the distribution of respondents across the six airports was uneven. Fifty respondents were selected from each of four airports – MAKIA, MIA, PIA, and AIA, while 100 respondents were selected from MMIA and NAIA. This discrepancy was due to the fact that Lagos and Abuja, where MMIA and NAIA are located, are homes to the busiest and most functional airports in Nigeria (Digit Insurance, n.d.; Okafor, 2022). These two airports are notably more prominent than the other international airports in Nigeria.

This study employed a quantitative research instrument, a questionnaire, to collect data. In this study, the questionnaire was used to collect data from the respondents. It was administered physically, where the researchers visited each of the airports to administer it. The researchers determined the procedures for data collection after observing the situations. The modes of administration of questionnaires were different across the airports. In MIU and MAKIA where communication is majorly done in Hausa language, the questionnaire was interviewer-administered, except where the respondent is fluent in English language and has no problem in answering the questions. Two of the researchers can communicate fluently in Hausa language and took charge of administering questionnaire in MIA and MAKIA located in the North-East and North-West regions respectively. The other researchers took charge of the administration of questionnaires in the remaining four airports (MMIA, NAIA, PIA, and AIA) where the questionnaire was mostly self-administered due to the lesser challenge of communication barriers since most people can communicate fluently in English language.

The researchers made use of their social networks and recruited seven assistants into the study to help in the administration of questionnaires and data collection. Subsequently, the data were analyzed using both descriptive and inferential statistical methods. Also, the researchers printed out an excess of 400 copies to account for missing or uncompleted questionnaire. The goal was to obtain 400 completed questionnaires for analysis. Subsequently, the analysis of results was on the completed questionnaire. Descriptive statistics were used to summarize the data, and Analysis of Variance (ANOVA) was used to test the hypotheses.

This study adhered to all ethical standards, codes of conduct, and best practices for quantitative social research. Ethical clearance was obtained from the University of Ilorin Ethical Committee. Participants were assured of their anonymity and confidentiality and informed of their rights to withdraw at any time. Consent was obtained from all respondents who volunteered to participate in the study.

4. Results and Discussion

The findings presented in this study are based on the analysis of 400 fully completed questionnaires. The data were presented in two formats: descriptive and inferential statistics. Univariate analyses were also conducted. Specifically, one-way and two-way ANOVA tests were performed to test differences between means and examine the interaction effect between two factors. A one-way ANOVA tests the effect of a single factor. A two-way ANOVA tests the effect of two factors and can also examine the interaction effect between them. These analyses provided a comprehensive view of the factors at play.

4.1 Demographic information of the respondents

Table 3 Demographic information of respondents (N = 400)

	Frequency	Percentage
Age		
15-24	24	6.0
25-34	163	40.8
35-44	179	44.8
45 and above	34	8.5
Ethnicity		
Yoruba	144	36.0
Igbo	122	30.5
Hausa	81	20.3
Others	53	13.3
Gender		

	Frequency	Percentage
Male	268	67.0
Female	132	33.0
Income level		
Less than N50,000	32	8.0
Between N50,000 and N149,999	116	29.0
Over N150,000	252	63.0
Marital status		
Married	199	49.8
Single	26	6.5
Separated	75	18.8
Divorced	100	25.0

Table 3 presents the demographic characteristics of respondents. The data reveals that a significant majority of respondents (85.6% or 342 people) are aged 25 to 44 years, with 40.8% (163) between 25 and 34, and 44.8% (179) between 35 and 44. This indicates that young adults are the primary demographic at Nigerian airports. The ethnic distribution is Yoruba (36.0%), Igbo (30.5%), Hausa (20.3%), and other ethnic groups (13.3%). This distribution mirrors the demographic reality of Nigeria, where the three largest ethnic groups are Hausa, Yoruba, and Igbo. The category labeled 'Others' encompasses various minority ethnic groups in Nigeria such as Ijaw, Tiv, Kanuri, Fulani, Ibibio, Igbira, among others. Interestingly, despite Hausa being the largest ethnic group (Findlay, 2019; Sasu, 2022), they rank third in this survey, possibly reflecting literacy levels or travel habits, and suggesting that Hausa may travel less frequently compared to Yoruba and Igbo. In terms of gender distribution, males (67%) outnumber females (33%). This data also indicates variations in travel habits based on gender, particularly in relation to business travel, which may be more prevalent among males. As for income, most respondents (63%) reported a monthly income exceeding N150,000, indicating air transportation is mainly used by higher income individuals. In the context of marital status, nearly half (49.8%) were married. This comprehensive demographic data offers valuable insights into the diverse backgrounds of the respondents, shedding light on their travel habits and preferences.

4.2 Types of aviation crimes experienced and witnessed in Nigerian airports

Table 4a Descriptive statistics on crimes experienced by respondents at Nigerian airports

	N	Mean	Std. Deviation	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
Stowaway	400	1.2975	.81280	2.839	.122	6.979	.243
Espionage	400	1.4400	.90191	2.312	.122	4.732	.243
Human trafficking	400	1.6525	.69495	.590	.122	-.788	.243
Prostitution	400	1.6975	.80474	.834	.122	-.265	.243
Money laundering	400	1.7825	.98876	1.338	.122	1.418	.243
Insider threats	400	1.9300	1.18685	.895	.122	-.599	.243
Stealing of baggage/luggage	400	1.9350	1.05288	.752	.122	-.399	.243
Criminal conspiracy	400	1.9875	1.20872	.948	.122	-.286	.243
Drug trafficking	400	2.0900	1.13142	.730	.122	-.392	.243
Destruction of baggage/luggage	400	2.1900	1.23398	.446	.122	-1.249	.243
Armed robbery	400	2.2575	1.28074	.473	.122	-1.195	.243
Extortion	400	2.2850	1.27390	.389	.122	-1.332	.243
Theft	400	2.3950	1.29931	.229	.122	-1.333	.243
Corruption among officials	400	2.4975	1.39278	.332	.122	-1.020	.243
Valid N (listwise)	**400**						

Table 4a and 4b present descriptive statistics on the various crimes experienced and witnessed by passengers and airport officials at Nigerian airports. Table 4a presents the descriptive statistics on various crimes *experienced* by passengers and airport officials in Nigeria. Every respondent reported a prevalence of crimes experienced at Nigerian airports, with the most prevalent being corruption among officials, theft, extortion, armed robbery, destruction of baggage, and drug trafficking. The mean score ranges from 2.4975 to 2.0900. Other crimes reported include criminal conspiracy, stealing of baggages, insider threats, money laundering, prostitution, and human trafficking. Conversely, espionage and stowaway were less frequently reported, with mean scores of 1.4400 and 1.2975 respectively, suggesting these crimes may be underreported or less prevalent. To the researchers' knowledge, existing studies have not thoroughly examined the types of crimes typical at Nigerian international airports (Nnodim, 2022; Odunsi, 2022; Okafor, 2022). While these crimes may be found globally, they seem particularly prevalent in developing countries like Nigeria. Among the crimes that appear unique to Nigeria are extortion by airport officials and stowaway incidents—crimes that are rarely reported in more developed countries.

Table 4b presents similar descriptive statistics for various crimes *witnessed* by the respondents in Nigeria airports. The data reveals that corruption among officials, destruction of baggage, theft, extortion, and armed robbery are the most witnessed crimes at Nigerian airports, with mean scores from 2.3600 to 2.1500. Other observed crimes include criminal conspiracy, stealing of baggage, insider threats, prostitution, money laundering, and human trafficking. Notably, espionage and stowaway crimes were less reported, with mean scores of 1.3475 and 1.2550, suggesting potential underreporting of these crimes. Previous studies on airport crimes in Nigeria have largely overlooked the frequency of different crimes (Nnodim, 2022; Odunsi, 2022; Okafor, 2022; Oyebade, 2018; Pius et al., 2017). In contrast, this current study is a departure from existing studies, aiming to address research gaps by examining the most prevalent crimes within Nigerian International Airports. The findings reveal that destruction of baggages, theft, extortion, and armed robbery are the predominant crimes observed. The prevalence of baggages destruction can be attributed to ineffective systems for managing passengers' luggage. Furthermore, the high incidence of extortion by officials may stem from insufficient oversight and management practices. Additionally, armed robbery appears to be escalating within the airports, likely due to weaknesses within the airport security apparatus.

Table 4b Descriptive statistics on crimes witnessed by respondents at Nigerian airports

	N	Mean	Std. Deviation	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
Stowaway	400	1.2550	.70086	3.113	.122	9.609	.243
Espionage	400	1.3475	.73695	2.368	.122	5.147	.243
Human trafficking	400	1.6400	.73604	.683	.122	-.865	.243
Money laundering	400	1.6650	.84235	1.203	.122	1.035	.243
Prostitution	400	1.6800	.76751	.751	.122	-.472	.243
Criminal conspiracy	400	1.8125	.97966	.881	.122	-.441	.243
Stealing of baggage/luggage	400	1.8625	.94913	.578	.122	-.947	.243
Drug trafficking	400	1.8750	.93625	.620	.122	-.824	.243
Insider threats	400	1.9450	1.18130	.877	.122	-.605	.243
Armed robbery	400	2.1500	1.22526	.541	.122	-1.165	.243
Extortion	400	2.2450	1.18680	.366	.122	-1.207	.243
Theft	400	2.2725	1.15176	.126	.122	-1.499	.243
Destruction of baggage/luggage	400	2.2775	1.17001	.258	.122	-1.170	.243
Corruption among officials	400	2.3600	1.44069	.499	.122	-1.046	.243
Valid N (listwise)	**400**						

The data provided in Tables 4a and 4b validate findings from existing grey literature and newspaper publications, indicating prevalent crimes at Nigerian airports (Inyang, 2017; James, 2021; Nnodim, 2022; Odunsi, 2022; Olugbode, 2022; Okafor, 2022; Oyebade, 2018; Pius et al., 2017; Sasu, 2018; The Guardian, 2022). Nwaogbe et al. (2018) suggest that while both airport officials and passengers both experience crimes, passengers are more affected. These crimes encompass corruption, often manifesting as passenger extortion and insider involvement in trafficking operations, implicating airport officials and security personnel. Other reported crimes include theft, burglary, robbery, vandalism, armed robbery, unauthorized access to airside areas, and money laundering. Corruption is also associated with incidents such as luggage theft from taxiing aircraft and social unrest (James, 2021; Nnodim, 2022; Odunsi, 2022; Okafor, 2022; Oyebade, 2018; Pius et al., 2017; The Guardian, 2022). Contrarily, espionage and stowaway are either underreported or less prevalent, aligning with Oyero's (2022) reports of few stowaway cases. In summary, evidence underscores the urgent need for improved security measures at Nigerian airports due to the prevalent crime trends. It is important to note that most existing reports on this topic were non-empirical. To the best of the researchers' knowledge, this study represents the first empirical investigation of crimes witnessed by passengers and airport officials at Nigerian airports.

4.3 Causes of aviation crimes in Nigeria

Table 5 presents descriptive results on the causes of aviation crimes in Nigeria. The table revealed that the major causes of crimes at airports include obsolete technologies for checking passengers (mean score: 4.7525), poor security checks at the airport entrance (4.7175), lack of organization in the airport (4.4975), improper monitoring of the airports by agencies responsible for it (4.4400), corruption among officials (4.3575), poverty and unemployment among the public (4.2675), insufficient security officers (4.2325), poor law enforcement (4.1600), lack of professionalism (4.0600), and lackadaisical attitudes on the part of airport authorities and security officers (4.0600 and 4.0225, respectively). Minor causes include inadequate training of security officers, improper passenger database handling, and passenger security unawareness. Skewness, kurtosis, and standard deviation are fairly within the normal level.

The results identify the top five contributors to aviation crimes in Nigeria as obsolete passenger-checking technologies, poor airport entrance security, disorganization (e.g., overcrowding at airports like MMIA), inadequate monitoring, and corruption among officials. These factors align with James' (2021) report attributing aviation crimes to similar security lapses. The integration of SDT and RAT supports the findings in this table. The increase in aviation crimes illustrates social disorganization, marked by a breakdown of law and order, alongside high poverty and unemployment rates, and weakened legal and social institutions. SDT links aviation crime prevalence to factors like official corruption, the lack of airport organization, insufficient law enforcement, untrained security personnel, and poor passenger database management, all stemming from weak social control structures. RAT posits that these conditions encourage motivated offenders, including corrupt officials, terrorists, unemployed or uneducated individuals, runaways, and petty thieves. Without effective guardianship—such as advanced passenger screening, thorough airport security checks, proactive authorities, and proper database management—these offenders are incentivized to commit crimes against vulnerable targets, including passengers and their belongings, as well as airport officials. It is noteworthy that studies on the causes of crimes in airports remains scarce. Despite increasing reports on aviation crime in the media, there has been limited scholarly attention focused on this issue. This current study offers a significant contribution to the existing literature, highlighting factors associated with aviation crimes that are particularly relevant to developing countries such as Nigeria.

Table 5 Descriptive results on the causes of aviation crimes in Nigeria

	N	Mean	Std. Deviation	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
Lack of security consciousness on the part of the passengers	400	2.2525	.43499	1.144	.122	-.696	.243
Improper handling of database of passengers	400	2.7475	.78440	.133	.122	-.784	.243
Lack of proper training of security officers on airport security	400	3.6400	.89297	-1.754	.122	3.084	.243
Lackadaisical attitudes on the part of security officers	400	4.0225	.43872	.114	.122	2.226	.243
Lackadaisical attitudes on the part of airport authorities	400	4.0600	.41452	.409	.122	2.642	.243
Lack of professionalism on the part of airport authorities	400	4.1600	.36707	1.862	.122	1.474	.243
Poor/inadequate law enforcement	400	4.1600	.36707	1.862	.122	1.474	.243
Inadequate security officers	400	4.2325	.71395	-.996	.122	1.596	.243
Poverty and unemployment among the general population	400	4.2675	.44321	1.054	.122	-.893	.243
Corruption among officials	400	4.3575	.51997	.162	.122	-1.045	.243
Improper monitoring of the airports by agencies responsible for it	400	4.4400	.49701	.243	.122	-1.951	.243
Lack of organization in the airport	400	4.4975	.60075	-.757	.122	-.398	.243
Poor security check at the airport entrance	400	4.7175	.45078	-.970	.122	-1.065	.243
Inadequate/obsolete technologies for checking passengers	400	4.7525	.45471	-1.492	.122	1.027	.243
Valid N (listwise)	**400**						

4.4 Test of Hypotheses

The hypotheses are essential for examining the differing perceptions of airport passengers and officials regarding the types and causes of crimes at Nigerian airports. Additionally, the analysis will consider variations based on the respondents' ethnicity and gender. This is crucial for determining whether there are significant differences in perceptions among these groups. The following hypotheses were tested using one-way and two-way Analysis of Variance (ANOVA): (1) no significant difference exists in the mean responses of passengers and airport officials on experienced crimes; (2) no significant difference exists in the mean responses of passengers and airport officials on witnessed crimes; (3) no significant difference exists in the mean responses of passengers and airport officials on crime causes; (4) no significant difference exists in the mean responses on crime causes based on ethnicity; and (5) no significant difference exists in the mean responses on crime causes based on ethnicity and gender.

Table 6 presents the ANOVA test results conducted on the responses regarding crimes experienced by two groups of respondents—passengers and airport officials—at Nigerian airports. The results indicate a significant difference in the mean scores of crimes experienced by passengers and airport officials. The test statistic was $F_{1, 398} = 2116.433$ and the p-value was 0.001, indicating a significant variation in crimes experiences between these groups. The passengers' mean response score was higher, suggesting they reported more crimes than airport officials. This variation in responses confirms that perceptions and experiences of aviation crimes differ substantially between these groups. In conclusion, this suggests that the perception and experience of crimes at airports differ substantially between these two groups. Specifically, passengers, being the primary victims of aviation crimes in Nigeria, report experiencing more crimes than airport officials. This aligns with existing reports (such as Nwaogbe et al., 2018) that, while airport officials do experience crimes, passengers are more affected by the criminal activities at the airports.

Table 6 ANOVA results on responses on crimes experienced by passengers and airport officials

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	243.249	1	243.249	2116.433	.000
Within Groups	45.743	398	.115		
Total	**288.992**	**399**			

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Passenger	200	2.7396	.42303	.02991	2.6807	2.7986
Airport official	200	1.1800	.22565	.01596	1.1485	1.2115
Total	**400**	**1.9598**	**.85105**	**.04255**	**1.8762**	**2.0435**

Table 7 presents the ANOVA test results for responses regarding crimes witnessed by two groups of respondents: passengers and airport officials. The test statistic was $F_{1, 398} = 3729.314$ and a p-value was 0.001, indicating a significant difference in the mean response scores between these groups. The passengers' mean score was higher, suggesting they witnessed more crimes than airport officials. This variation implies that the perceptions and observations of aviation crimes differ substantially between these groups. Given that airport officials have been implicated in aviation crimes in Nigeria, such as corruption, extortion, and insider threats (Nnodim, 2022; Okafor, 2022; Udegbunam, 2022), we can also infer, from this result, that they are less likely to report witnessing crimes than passengers, who are primarily victims.

Table 7 ANOVA results on responses to crimes witnessed by passengers and airport officials

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	199.112	1	199.112	3729.314	.000
Within Groups	21.250	398	.053		
Total	**288.992**	**399**			

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Passenger	200	2.5904	.22065	.01560	2.5596	2.6211
Airport official	200	1.1793	.24103	.01704	1.1457	1.2129
Total	**400**	**1.8848**	**.74316**	**.03716**	**1.8118**	**1.9579**

Table 8 presents the ANOVA test results on responses regarding the causes of crimes committed at the airports between two groups: passengers and airport officials. The test statistic was $F_{1, 398} = 14.184$ and the p-value was 0.001, indicating a significant difference in the mean response scores of the causes of crimes as expressed by both groups. This suggests that perceptions of causes of crime at airports differ significantly between these groups. This result indicates a tendency for both groups to choose answers that absolve them of blame rather than implicate them. For instance, passengers tend to attribute aviation crimes to factors such as corruption among officials, lackadaisical attitudes, and unprofessional conducts of airport officials, rather than their own lack of consciousness about security measures. Similarly, airport officials are more likely to cite factors like passengers' lack of security consciousness, poor training, inadequate security personnel, or outdated technology, rather than acknowledge personal involvement in corrupt activities. This result proves to be significant as they shed light on the varying perspectives of respondents. Thus, understanding these perspectives can be instrumental in formulating effective strategies to combat aviation crimes in Nigeria.

Table 8 ANOVA results on responses on the causes of aviation crimes

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.331	1	.331	14.184	.000
Within Groups	9.277	398	.023		
Total	**9.608**	**399**			

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Passenger	200	3.9932	.16970	.01200	3.9696	4.0169
Airport official	200	4.0507	.13350	.00944	4.0321	4.0693
Total	**400**	**4.0220**	**.15518**	**.00776**	**4.0067**	**4.0372**

Table 9 ANOVA results on the different ethnic groups' responses on the causes of aviation crimes

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.508	3	.169	7.372	.000
Within Groups	9.100	396	.023		
Total	9.608	399			

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Yoruba	144	4.0045	.16099	.01342	3.9779	4.0310
Igbo	122	4.0492	.14895	.01349	4.0225	4.0759
Hausa	81	3.9735	.14394	.01599	3.9417	4.0054
Others	53	4.0809	.14219	.01953	4.0417	4.1201
Total	400	4.0220	.15518	.00776	4.0067	4.0372

Levene Statistic	df1	df2	Sig.
1.274	3	396	.283

(I) Ethnic group	(J) Ethnic group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Yoruba	Igbo	-.04472	.01865	.079	-.0928	.0034
	Hausa	.03092	.02105	.458	-.0234	.0852
	Others	-.07640*	.02435	.010	-.1392	-.0136
Igbo	Yoruba	.04472	.01865	.079	-.0034	.0928
	Hausa	.07564*	.02173	.003	.0196	.1317
	Others	-.03168	.02494	.582	-.0960	.0327
Hausa	Yoruba	-.03092	.02105	.458	-.0852	.0234
	Igbo	-.07564*	.02173	.003	-.1317	-.0196
	Others	-.10732*	.02678	.000	-.1764	-.0382
Others	Yoruba	.07640*	.02435	.010	.0136	.1392
	Igbo	.03168	.02494	.582	-.0327	.0960
	Hausa	.10732*	.02678	.000	.0382	.1764

*The mean difference is significant at the 0.05 level

Table 10 Two-way ANOVA results on responses on causes of crimes based on ethnicity and gender

Ethnic group	Gender	Mean	Std. Deviation	N
Yoruba	Male	1.9663	.68455	70
	Female	2.1236	.68495	74
	Total	**2.0471**	**.68690**	**144**
Igbo	Male	1.7143	.74915	88
	Female	2.5286	.50910	30
	3.00	1.6071	.62133	4
	Total	**1.9110**	**.77522**	**122**
Hausa	Male	1.5405	.69007	60
	Female	1.6224	.71790	21
	Total	**1.5617**	**.69379**	**81**
Others	Male	1.8314	.74870	50
	Female	2.6429	.00000	3
	Total	**1.8774**	**.75103**	**53**
Total	Male	1.7631	.73191	268
	Female	2.1484	.70430	128
	3.00	1.6071	.62133	4
	Total	**1.8848**	**.74316**	**400**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	30.409[a]	8	3.801	7.824	.000	.138
Intercept	200.449	1	200.449	412.605	.000	.513
Ethnic group	13.028	3	4.343	8.939	.000	.064
Gender	7.952	2	3.976	8.184	.000	.040
Ethnic group * Gender	7.875	3	2.625	5.403	.001	.040
Error	189.953	391	.486			
Total	**1641.383**	**400**				
Corrected Total	**220.362**	**399**				

[a.] R Squared = .138 (Adjusted R Squared = .120)

Table 10 presents the results of a Two-way ANOVA, a statistical test used to examine the influence of two categorical predictor variables (in this case, ethnicity and gender) on a continuous outcome variable (in this case, respondents' responses on the causes of aviation crimes). The tested hypothesis posited no significant difference in the mean score of respondents' responses on the causes of crimes at the airport based on ethnicity and gender. However, the results revealed a statistically significant interaction at the $p = 0.001$ level, suggesting strong evidence against the null hypothesis. This indicates a significant effect of the interaction between ethnicity and gender on the responses. Moreover, the table also reveals a statistically significant difference in the mean number of crimes witnessed among various ethnic groups (p-value = 0.001), and between genders (male and female) (p-value = 0.001). This suggests that both ethnicity and gender independently exert a significant influence on the responses.

Figure 2, illustrating the estimated marginal means of crimes witnessed at Nigerian airports based on ethnicity and gender, reinforces the previous results. The graph displays four lines, each representing a different ethnic group (Igbo, Hausa, Yoruba, and Others). Each line has two data points, corresponding to the estimated marginal means for each gender within the respective ethnic group. The variations in these lines suggest differences in the mean scores for aviation crimes witnessed among the ethnic groups and between genders. Consequently, a statistically significant interaction was observed ($F_{3, 391} = 5.403$, $p = 0.001$) between the effects of gender and ethnic group on respondents' responses on the causes of crimes at Nigerian airports. The F value of 5.403 indicates a significant difference in variances, further supporting the interaction effect of gender and ethnicity on the responses. In summary, the analysis reveals that both ethnicity and gender independently exert a

significant influence on respondents' responses of the causes of aviation crimes in Nigeria. However, the interaction effect between these two factors is also significant. This implies that the impact of one factor (gender) is not constant but varies depending on the level of the other factor (ethnicity). In other words, the perception of the causes of aviation crimes is not solely dependent on a respondent's gender or ethnicity but is influenced by the interplay between these two factors (i.e., gender and ethnicity). This nuanced understanding can provide valuable insights for developing more effective strategies to address aviation crimes in Nigeria.
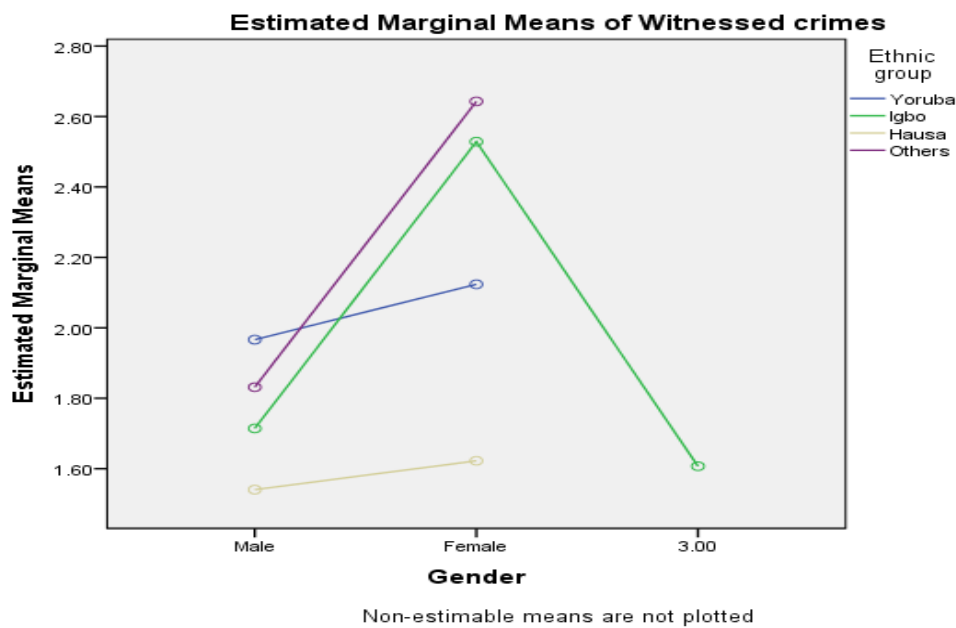
Figure 2 Estimated marginal means of crimes witnessed at Nigerian airports based on ethnicity and gender

Overall, passengers at Nigerian airports report witnessing and experiencing more crimes than airport officials, yet their perceptions regarding the types and causes of crimes in Nigerian airports are largely consistent. The most commonly reported offenses include extortion of passengers by both airport officials and non-officials, armed robbery, destruction of passenger luggage, and instances of stowaway. These crimes particularly appear to be more prevalent in developing countries compared to developed countries, likely due to lower levels of technological advancement for checkmating, monitoring and regulating airport activities. The analysis further reveals that these crimes are aggravated by obsolete passenger-checking technologies, inadequate airport security, operational disarray (such as overcrowding at airports like MMIA), insufficient oversight, and corruption among officials. Additionally, the analysis of variations in respondents' perceptions regarding the causes of aviation crimes in Nigeria among different ethnic groups, particularly highlights a significant divergence in views between Igbo and Hausa respondents. Notably, this study represents the first most recent empirical research focusing on the types, trends, and causes of crimes at Nigerian international airports, to the best of the researchers' knowledge.

The integration of SDT and RAT offers a comprehensive understanding of the factors contributing to aviation crimes in Nigeria. SDT sheds light on the structural and sociopolitical elements that foster a crime-friendly environment, while RAT focuses on the situational dynamics that connect motivated offenders with suitable targets in the absence of effective guardianship. SDT identifies key contributors to aviation crime, including corruption among officials, widespread poverty and unemployment, underfunded or understaffed law enforcement, disorganized airport operations, inadequate training, and poor management of passenger databases. In contrast, RAT outlines three critical factors that lead to crime: motivated offenders, suitable targets, and a lack of capable guardians. This theory posits that criminal activities are most likely to occur when these elements converge in both time and location. Motivated offenders may arise from economic desperation, personal grievances, or ideological motivations, encompassing a range of individuals such as terrorists, unemployed or uneducated persons, corrupt officials, petty thieves, and runaway children. Suitable targets primarily include

passengers and airport officials. Effective guardianship mechanisms play a pivotal role in preventing crime; in this context, capable guardians consist of thorough security checks, advanced passenger screening technologies, proactive security personnel, and effective management of passenger databases. By addressing both structural weaknesses and situational vulnerabilities, this integrated approach can significantly enhance crime prevention strategies, ultimately improving the safety and orderliness of air travel environments. A nuanced understanding of this interplay will empower aviation authorities to develop more effective crime prevention tactics that tackle both the structural issues identified by SDT and the situational factors highlighted by RAT. By strengthening social institutions, investing in training, and leveraging technology, stakeholders can enhance overall airport security and effectively reduce crime rates.

5. Conclusion

Globally, the aviation industry plays a significant role in fostering rapid international and intercontinental connections, whether for socio-economic, political, or commercial objectives. Recognizing this significance, various security agencies, including the Police, Immigration Service, Customs, and State Security Service, are deployed to airports in all countries to ensure the utmost safety of individuals and their properties. However, it is unfortunate that despite these security measures, many airports, particularly those in Africa like the Nigerian airports, are plagued with insecurity, crimes, and antisocial issues. Reports of various crimes, such as stealing of baggage from taxiing aircrafts, theft, money laundering, vandalism, armed robbery, and smuggling of illegal goods, including hard drugs like cocaine, are common.

The discussion reveals that Nigerian airports are grappling with serious security and crime issues. These include corruption among officials, theft, destruction of baggage/luggage, extortion, armed robbery, drug trafficking, among others. The analysis also indicates that the increase in airport security challenges is linked to poor/obsolete technologies for proper checking of passengers, inadequate/outdated/malfunctioning security equipment, poor security check at the airport entrance, a lack of skilled and dedicated security personnel, lack of organization at the airports, among others. Specifically, there is a shortage of security escort vehicles for arriving and departing aircraft, enhanced CCTV systems, and patrols.

Drug trafficking is one of the most prevalent aviation crimes in Nigeria. Therefore, it is imperative to deploy drug detection equipment immediately. This would replace the current practice of manually searching passengers' bags at tables; a process that allows corrupt airport officials, especially checkers, to exploit and extort passengers. There have been allegations of officials planting drugs in passengers' bags and then demanding bribes when these are discovered. To improve runway and perimeter surveillance, additional watchtowers need to be urgently constructed. The existing watchtowers are insufficient, given the high traffic at Nigerian airports, especially those in Lagos. Also, the installation of a new, long-range pan-tilt-zoom apron surveillance system should be considered to enhance airport security.

More importantly, a pervasive culture of corruption exists among security officials and airport workers. The study underscores the need for concerted efforts to tackle this systemic corruption, as it can render other physical security measures counterproductive. Given that corruption is a systemic issue, a policy-based approach is required to counteract it. This approach should involve identifying the different forms of corruption and corrupt practices in existence, specifically in the aviation industry, and stipulating their corresponding penalties. The imposition and execution of these penalties should be swift, certain, and severe to achieve both specific and general deterrence. When anyone is caught engaging in any corrupt malpractice in the aviation industry, the application of the law and its punishment imposition should be fair and swift. This approach would contribute to the eradication of corrupt practices that negatively impact the reputation of both the aviation industry and the country.

6. Acknowledgements

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