

A Proposed Control System for Checkmating an Aeronautics Agency Riddled with Fraud

Onwudebelu Ugochukwu¹ and Olusanjo Olugbemi Fasola²

¹University Paris 13, Informatics Laboratory of Paris-Nord (LIPN), UMR CNRS 7030

²Department of Computer Science, University of Ibadan, Ibadan, Nigeria

anelectugocy@yahoo.com; sanjo.fasola@mbrcomputers.net

ABSTRACT

In recent year the nature of airports has changed vastly. Aviation problem is a chain and some time it trends is complex. It is a sector that changes with time and shared various challenges. Corruption is now the centre of gravity in most nations and it sucks every value, every moral and every drop of human compassion into its vortex. Fraud (be it procurement or maintenance frauds) in the aviation ministry in any country can only continue to make the aviation sector unsafe and thus exacerbate the increasing level of violation of the citizens' human right to life and to security and dignity of the person. Consequently, the immediate future for airlines will be shaped by how well they cope with the current economic crisis. Imagine the following information scenario: the aviation industry is generating a lot of money in many countries of the world but what if the reverse is true in some countries. This will definitely cause such aviation industry to be weak and stagnant. In this paper, we look at the causes and then design a system for detecting and controlling the causes of these abnormalities. This becomes especially important since airports are unique in nature and what works at one may not be successful at another as the operating environment may not be comparable. Non-aviation revenue will be looked at as a key factor in generating revenue for this all important sector. In our research, we aim at checkmating and eliminating criminal activity against the aviation industry, people, customers, suppliers or other stakeholders (with a 'zero tolerance' strategy in relation to crime and corruption) as well as revenue generation. This system, if implemented will be able to manage and control crime, corruption, fraud as well as generate fund for the industry.

Key Words: non-aeronautical revenue, airports, fraud, control system,

1 Introduction

Aeronautics is the science or art involved with the study, design, and manufacturing of air flight capable machines, and the techniques of operating aircraft and rockets within the atmosphere [4]. Ghana is approximately one-sixth the population size of Nigeria, however, a visit to the Kotoka International Airport, Accra, Ghana will surprise any Nigerian, as he will notice to his shock that the airport is a frail facility which is smaller than the Murtala Muhammed International Airport in Lagos [2], nevertheless, it is busiest airport in Ghana. In it, the immigration officers, aviation security and others efficiently carry out their duties resulting in a touch of patriotism wafting from those airport personnel. That is what is

conspicuously lacking in Nigeria's airport. Consequently, it is not surprisingly that all the airlines that operate in Nigeria equally operate into the airport; these include British Airways, Lufthansa, KLM, Air France and others. There are also many other international carriers that also operate from the same airport, which do not operate from any airport in Nigeria.

Some Nigerian airport officials are self-centered not minding the effect of their decision on the entire nation or the sector. For this reason, it is difficult for the Nigeria economy to grow, more especially, such attitude is affecting the airport economic performance and with this attitude nobody will be willing to do business with Nigeria and this will affect job creation which can benefit even the families of this airport officials. A travel expert said in [2] that it is basically easier to travel through Accra airport than to travel through Lagos. Reasons given includes that Lagos airport is stressful; check in and transfer in Accra is easy; the town is also less stressful; fares for first class and business class cabins are lower. As a result a passenger flies to London from Accra at a cheaper fare.

Since 1999, President Obasanjo [3] stopped politicians from abusing the aviation industry but the other abuses have not stopped. Many see the aviation industry in the corruption continuum. Corruption in the aviation ministry in any country can only continue to make the aviation sector unsafe and thus exacerbate the increasing level of violation of the citizens' human right to life and to security and dignity of the person. They only cry when their corrupt practices result in death of loved ones but after few crocodile tears, these people settle down to life as usual, taking bribes in order to allow cutting corners in maintenance of private air fleets or turning deaf ears to airline operators buying condemned unmaintained aircrafts from foreign lands.

Another issue is that of security. Lasting development cannot be realized without sustainable security. The Levels of safety and security in civil aviation of a nation are determinant factors of economic growth and indices for investment prospects [14]. It is very important therefore for managers and operators in civil aviation to acquaint themselves with what safety and security are about because they form the bedrock for operational growth and continuity in any developed or developing country. Safety and security issues as well as plan to audit the airlines have become critical to the health of the industry and the nation. The plan to audit the airlines will be one in a series of airlines' audit which had trailed the aviation industry since aircraft started falling off the skies since 2005. After the crash of Bellview Airlines in October 2005; Sosoliso in December 2005 and ADC in October 2008, each accident had come with safety audit of airlines, yet planes keep dropping off the skies.

Corruption has eaten deep in our society that human compassion in areas such as aviation industry that is supposed to be corruption free is not spared [3]. Corruption in aviation industry is also affecting many different countries. For instance, in China, the southern regional director of the Civil Aviation Administration of China (CAAC), Liu Yajun, was struck and killed by a train. CAAC authorities responded to public concerns by posting statements in an official newspaper. They said "chose to commit suicide because of depression," and thus denied any connection between his death and possible misconducts [5]. A corrupt aviation ministry will clearly lack the moral authority to effectively carry out important oversight functions or to ensure due diligence regarding the registration and operation of aircraft with safety concerns. The international community has finally appreciated and come to terms with the reality of the "cancer of corruption" and its ubiquitous nature [10]; hence, we are all in agreement that being a

persistent feature of human existence worldwide, its solution lies in the collective action of key global institutions with organized international joint efforts against corruption. These efforts have produced a lot of anti-corruption measures including bi-lateral and multilateral agreements, enactment of national anti-corruption laws such as the Nigeria's Economic and Financial Crimes Commission Act, 2004, the designing of international framework and strategies for the prevention of corruption and the making of an all important United Nations Convention Against Corruption (UNCAC) which has now become the reference point for anti-corruption fight all over the world is very essential in this struggle.

The causes of corruption are multiple and have been discussed by scholars under numerous headings but we will briefly list some of the major causes of corruption in a political economy that we have identified as investigators [10, 12, 19]. They include: weak institutions, poverty, poor remuneration, poor incentive system etc. Without addressing corruption in the aviation industry the country will continue to struggle to meet global standards in this sector rather than operate maximally and profitably to the growth of the economic. The former Military Head of State, Gen. Buhari, noted that "two former Ministers of Aviation are undergoing prosecution for corruption [1]. Thus, corruptions have ruined this important sector of the nation that industry's best practices are often circumvented at will by the airline perpetrators. The result of these infractions is what was witness with Air disasters such as the ill-fated Dana airliner which crashed in June killing 153 people onboard, the committee setup to investigate the crash said it was an old plane that was banned from use in the United States before it was brought into Nigeria in 2009 [2] as well as the most recent crash of Associated Airlines' plane in Lagos which claimed the lives of at least 15 people [11].

The activities of the aviation sector include: the Nigeria Civil Aviation Authority (NCAA); Nigerian Airspace Management Agency (NAMA); Federal Airports Authority of Nigeria (FAAN) and other key agencies under the aviation sector. The ministry of aviation is becoming bigger in the scheme of things and this must be redressed. In most countries the regulatory body runs the industry [17] – Federal Aviation Administration (FAA) in USA, Civil Aviation Authority (CAA) in the UK, Ghana Civil Aviation Authority in Ghana, etc. unfortunately the ministry appears to be taking over the powers of the NCAA in Nigeria. This must be discontinued otherwise the industry will revert to the old era of constant incidence. Policy makers must be separated from the regulators.

Another important issue that needs mentioning is the issue of lack of any fundamental strategy to develop a revenue generation plan for the non-aviation sector, that is, non-aviation revenue. Zenglein and Müller define non-aviation revenue as [20]: Any revenue which is not directly or indirectly associated with the handling of aircraft as well as getting anything (passengers, fuel, cargo) to and from the aircraft including any indirectly received revenue originating from providing necessary infrastructure and services for any kind of flight operation. Most notably all commercial activity within the perimeters of the airport as well as services to other external companies, as long as they are not part of the operational activity at the relevant airport are to be considered as non-aviation.

2 SWOT Analysis

One of the simplest tools for mapping the signals relevant to change in an agency or industry is the SWOT analysis [18]. SWOT stands for Strengths, Weaknesses, Threats and Opportunities. It is a simple, structured way of exploring the key challenges facing an agency. The SWOT analysis in Table 1 reveals several opportunities but limited strengths. It is essential for nations in Africa and Nigeria in particular to make

the most of the strengths and opportunities when directing efforts and crafting policies with regards to the aviation sector. A number of the identified threats can be limited through appropriate legislation.

Table 1: SWOT Analysis for Aeronautics Agency in Nigeria

<p>Strength</p> <ul style="list-style-type: none"> a. Advantage of later adopter. b. Borrow solutions from others such as USA, UK, Canada, India etc. 	<p>Weakness</p> <ul style="list-style-type: none"> a. Weak internal controls or compliance programs. b. Public corruption. c. Lack of effective enhanced compliance policies. d. Lack of non-aviation revenue figure. e. Lack of Whistleblower Policy.
<p>Opportunities</p> <ul style="list-style-type: none"> a. Using personal liability as a deterrent to corruption. b. Effective exploitation of the non-aviation revenue domain. c. Establishing a strong local operational presence of airlines. d. Developing modern airports with non-aviation in their initial design. 	<p>Threats</p> <ul style="list-style-type: none"> a. Domestic and international tax fraud. b. Corruption and money laundering. c. Illicit payments to third parties agent. d. Political appointment to key position in the industry which is not based on experience but on closeness to the powers that be. e. Lack of patriotism. f. Recruiting the wrong people into the right jobs.

3 Design and Methodology

The fact that huge sum of money was invested in the aviation industry in Nigeria but only debt was incurred, demonstrated the fact that there appears to be a fundamental problem in the system that has not been addressed and that has to do with policies enunciated for the industry by government or any other factor. Nigerians need to develop a new strategy and let a system function to the benefit of all in the aviation industry. The aviation sector needs to look again at the following: aircraft operation, take off and landing and maintenance schedule of the engines which are measured in operation hours. The areas of expenditures include but not limited to the following key air carrier operation processes:

- a) Operational management
- b) Air transportation
- c) Aircraft maintenance
- d) Personnel training
- e) Operational resources provision

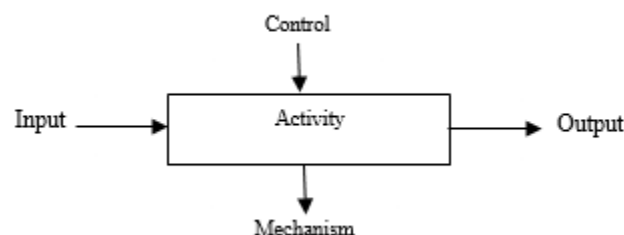


Figure 1: System Design Approach

Design is the structured creation of artifacts. The system design approach use here is called model-driven design. It specifies how a system does what it does. A system generally consists of input, process and output which can be represented by the acronym ICOM which stands for Input, Control, Output, and Mechanism (see Figure 1). The control and mechanism represent (the process) box from different sides of the box: controls connect at the top, inputs connect at the left, outputs connect at the right, and mechanisms connect at the bottom as shown in figure 1.

The diagram in Figure 2, shows our proposed control system for checkmating an aeronautics agency riddled with fraud. We also discussed ways for realizing revenue in the aviation industry which have not been exploited fully by the sector in section IV.

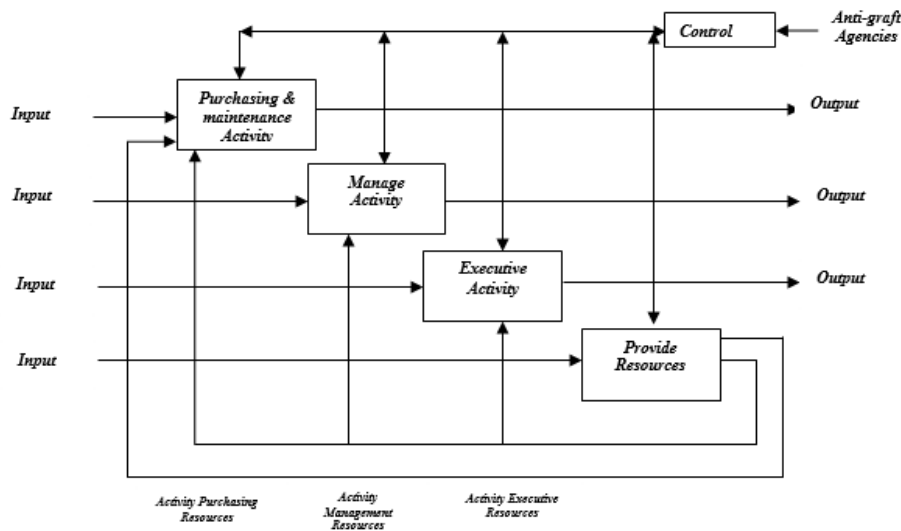


Figure 2: Control System in Aeronautics Agency

The aviation agency should carefully consider whether their existing anti-bribery compliance programs and controls adequately address the risks of doing business, particularly with previously untested third parties, in countries perceived to be at higher risk for corruption. The issue of corruption in the public service especially government functionaries who act with impunity in the spending of public funds, without attending to the reasons for which they were employed or appointed as a result of no control and feedback measures from an independent anti-graft agency will be brought to minimum by the new system (see Figure 2).

Maintenance Section: There are numerous tasks waiting to be pushed such as sufficient oversight of regulatory authority, a more transparent operating mechanism, the purchase of new parts to replace worn-out once, etc. In all this areas, there is need for transparency and an effective checks and balances as well as official accountability especially in the maintenance sector of the industry. Any reasonable designer of machines especially airplanes knows that the use of such machines airplanes involve risks which must be minimized through active maintenance culture and human factor considerations. Therefore, there is need for requisite engineers to do independent aircraft maintenance checks on the planes. In addition, the aerospace agency has to become a member of an International Contract Corruption Task Force (ICCTK), to help identify potential violations of the law with particular focus on contract corruption, procurement fraud as well as maintenance fraud.

In addition to fines, penalties and prison sentences, companies and individuals may be barred from doing business with the Federal government if found to have violated the law in the sector as compliance with the law means observing the letter and spirit of the law. Company executives face the daunting challenge of continually reassessing compliance risk with the law, monitoring the adequacy of compliance programs, and taking proactive measures where necessary to establish or augment processes in order to further mitigate the risks of noncompliance. This can be achieved as follows:

- i. Periodic risk assessments that evaluate country risk, business partner risk, internal control weaknesses and other factors that may indicate a vulnerability to law violations by either employees or third parties;
- ii. A regular performance of internal audit using an Internal Audit programs to monitor and enforce compliance into a recurring internal audit plan of the aviation agency;

Specialized computer applications can help identify transactions in the accounting system with characteristics of potential interest such as [9, 20]: round naira /dollar payments; one time payments to vendors; duplicate payment amounts to the same vendor; and duplicate invoice numbers. Other leading potential red flags that the law enforcement agency needs to be aware of include the following:

- a) Transaction files lacking supporting documentation such as diligence records, evidence of services rendered, etc.;
- b) Significant cash advances or reimbursements for travel with insufficient detail;
- c) Payments for consulting services with vague descriptions of services rendered.

4 Discussion

An important part of managing risk is ensuring that the critical controls in which an agency relies on are in place and remain effective. It is equally important that the sector proactively check and monitor those controls so that they would be able to take action to avoid failure. In the purchasing & maintenance section of the diagram in Figure 2, a control by the anti-graft agencies such as the Economic and Financial Crimes Commission (EFCC) or Independent Corrupt Practices and Other Related Offences Commission (ICPC) will have to monitor and investigate any corrupt practices in the aviation sector in that domain to checkmate misappropriation or mismanagement of fund provided by the "Provide Resource" in the diagram. Others area that will be monitored and be investigated include the management activities as well as the executive activities (minister) as concerned resources provided. The outputs provided by various activities must however correspond to the control activities output provided by the anti-graft agencies (their findings). This will help in curbing corrupt tendencies, mismanagement of aviation funds and incompetence, in addition to the abuse of power by top managers (for they use their powers to create avenues for unjust enrichment or use the discretionary powers at their disposal to manipulate the system). Consequently, this will help to expose the depth and breadth of corruption and mismanagement of public funds in the aviation sector.

It is important that the government through the anti-graft agencies stepped in to ensure that the level of corruption in the sector is eliminated. As a matter of fact, the anti-graft agency must be independent from the Presidency no matter the political pressure. Consequently, they must also be allowed to act on their findings. The anti-graft agencies should be empowered to investigate all the aviation parastatals. From the diagram in Figure 2, it is clear that the anti-graft agencies will investigate all, not only the

minister. This will make everyone from the top management to the middle down to the lower management to be responsible for his/her actions. The chief executive must take proactive measures where necessary to establish processes in order to further mitigate the risks of noncompliance to any compliance program in the industry. Any culprit must be made to face the full wrath of the law without nepotism. Therefore, the anti-graft agencies mentioned above need to eradicate the following in the aviation ministry [17]:

- i. Its weak regulatory regime,
- ii. Declining and low professional competence in the NCAA, and
- iii. Non-adherence to laid down procedures.

Any breach of applicable laws, prevailing business ethics or other requirements set out in any policy document should result in disciplinary action. Such disciplinary action may include, depending on the severity of the breach, counselling, formal warning, demotion or termination of employment. Employees must learn to conduct themselves and the businesses in the aviation sector with the highest level of ethics, integrity and in the best interest of the sector. This obligation also applies particularly to dealings with shareholders, customers, suppliers, competitors, governments, regulators, and all other stakeholders. Furthermore, people must: understand and comply with relevant policies, supporting materials and processes; immediately report suspected, attempted or actual non-compliance (however minor) to the applicable law.

4.1 The Need to Encourage Whistleblower Policy

Aviation companies, as well as their officers, directors, and agents who engage in illegal activities for their financial benefit, should be held accountable for their actions. Consequently, any person or persons found culpable must be made to face the wrath of the law in order to serve as deterrent to such lapses in future. The Federal government must be commended for the action it took concerning the former minister of aviation Stella Oduoh (sacking and replacing her) who spent \$1.6 million on two BMW armored cars [8]. Another case of interest is an astonishing \$9.3m cash found stashed in the luggage of two Nigerians and an Israel abroad a private jet reportedly owned by a popular Nigeria cleric pastor Ayo Oritsejafor [16] which is still under investigation. The Nigeria government ought to be steadfast in their determination to combat domestic and International tax fraud, corruption and money laundering via aircraft.

To understand their obligations, people working in the aviation industry must read: code of conduct and ethics which references crime and corruption control policy. Employees must fully cooperate with internal or external auditors and must not make a false or misleading statement or conceal any relevant information from these auditors. If there is a breach of any legal or regulatory requirement or of any policy, it is employees' responsibility to report the matter. It is preferred that such concerns or potential breaches are reported directly to executive managers or as a last resort to an anti-graft agency. In instances where people are fearful of any possible unfavourable repercussions as a result of raising a concern, the whistleblower policy can assist with protecting their identity. Recently, the Chinese authorities [6] said that whistle-blowers will be protected amid an ongoing crackdown on corruption; the Nigerian government should follow in their footsteps.

4.2 Placing and Recruiting the Right People in Mission-Critical Position

Nigeria's aviation potential is arguably the best in the continent, but we need the right people with the right policies and character to make this happen. The aviation sector needs to be reposition so as to

function maximally and profitably as their counterpart in other parts of the world. The aviation ministry in Nigeria must learn to follow directions and mimic policies of those whose aviation industries have survived for decades (see Table 1). To win the hearts and minds of the governed, government must deliver goods and services especially in the mission critical areas such as aviation, roads and hospital. Consequently, there is a need to place an aviator (a technocrat) in such mission-critical position that will listen to other genuine aviation professionals, taking proactive measures and diplomatically respond accordingly and knowledgeably to anything that has to do with the aviation industry [15]. He/she must not lack honesty and affirmation of morality. To the best of our knowledge and through our reach, aviation ministers have hardly be aviators themselves. For example, Professor Babalola A. Borishade, a onetime aviation minister was a brilliant electronic and electrical professional, though, he could learn quickly, but would not it had been better to put an aviator in such mission-critical position? Furthermore, Femi Fani-Kayode who replaced him was the former Minister of Culture and Tourism, who himself was not an aviator. In our research we discovered that most of the past aviation minister were not professionals when it comes to the aviation sector (See Table 2). The current President, Mr. Muhammadu Buhari, must be applauded for appointing a former pilot as the aviation minister, the first in the history of the aviation sector.

Table 2: Federal Minister of Aviation and What They Studied

Year in Office	Federal Minister of Aviation	Study
May 1999 - 2001	Olusegun Agugu	Geology
2001 – May 2003	Kema Chikwe	French
May 2003 – June 2005	Mallam Isa Yuguda	Economics
July 2005 – Nov. 2006	Prof. Babalola Borishada A.	Electrical Engineering
Nov. 2006 – May 2007	Femi Fani-Kayode	Law
June 2007 – Oct. 2008	Felix Hyatt Hassan	Unknown
Dec. 2008 – March 2010	Babatunde Omotoba	Civil engineering
April 2010 – May 2011	Fidelia Njeze	Pharmacy
July 2011 – July 2014	Princess Stella Oduah	Accounting
July 2014 – May 2015	Osita Chidoka	Management
November 2015- Till Date	Hadi Sirika	Former pilot

The aviation sector must provide a fair and transparent recruitment process based on: sourcing, selecting and appointing the best possible candidates for available positions based on merit rather than appointing people with little or no background concerning the industry. Transparency must also be seen in developing people wherever possible; positively managing candidates and the selection process as well as ensuring that new employees are onboard as quickly and as smoothly as possible.

4.3 Diversification in Revenue Generation

Low revenue generation has amplified pressure on airports to identify other revenue sources ensuring continued revenue growth and increasing profitability. In light of changing airport economics, non-aviation has therefore become an important component of revenue generation for modern airports. The Nigerian government needs to exploit this area also. Airports regardless of size have attempted to increase their share from non-aviation, as profit margins from this sector are typically higher. For example in some countries revenue streams also come from utility service or supply of services like de-icing, waste removal, aviation fuel or engineering services, thus boosting their income from this sector. Furthermore,

other revenues can be generated from parking, property, security services, Information Communication and Technology (ICT) services, staff cafeteria etc. Clearly, some can be considered as non-aviation activities, whereas for others (e.g. security services) the allocation is questionable and the exact contribution of each will remain in the dark.

Airports can be very attractive locations for a variety of companies and its infrastructures have a tremendous influence in its environ and the people in the area. Being near the airport and benefiting directly from its operation can attract further corporate customers which can benefit by locating in the vicinity of the airport. For example, such a business location will generally benefit from a well-developed infrastructure leading to the airport and can thereby minimize the commute of its customers e.g. conference centres, hotels, business parks, commercial development, event management, supply services, rents, leases, transportation companies (including taxis), consulting services, real estate development etc. Modern airports which have taken non-aviation into consideration during their initial design will have better opportunities to benefit from non-aviation revenue. In addition, good transportation infrastructure with highway accessibility, rail and bus access and the distance to the city may further influence non-aviation potential.

Non-aviation activities have become increasingly important for airports. In recent years the sector has become more complex and diverse. Consequently, measurements of non-aviation activities are an important indicator of an airport's performance. But lack of a common definition and variations in data availability as well as limited transparency make interpreting such performance problematic [20]. Annual reports are often the only source of data and an analysis of this reveals that non-aviation remains a very ambiguous topic complicating data collection. Aviation charges still are an important revenue source but it is no longer the nucleus. In addition, non-aviation activity leaves airport operators with more creativity to generate additional revenue. At this point it should be stressed that the passenger is not the only potential customer at an airport. The passenger volume airports generally have five possibilities to generate revenue: retail, services, food and beverages, parking, and passenger access. To a much smaller amount some revenue streams are not based directly on the passenger's presence but on the airport's infrastructure and flight operation competencies. It allows the airport to generate a more diversified revenue stream and to maximize its non-aviation revenue.

5 Conclusion

No development can take hold without hard work, clear vision, and security in the air, land and sea. Government needs to start addressing issues raised here rather than see aviation as one sector to compensate loyalists who lacks the necessary professional skills needed in such a mission critical sector of the country. It must generator revenue in this sector to make up for shortfall in oil revenue. Without addressing corruption in the aviation industry the country will continue to struggle to meet global standards in the sector. In this respect, the President should ask anticorruption agencies to monitor the spending made by the ministry of Aviation on everything from airport safety to fleet maintenance and pilot training and certification. Every aviation industry must place high performing individuals in mission-critical positions for maximum risk assessment. Hence, an aviation industry even in a politically charged environment like in Nigeria must have professionals with strong work ethics, problem-solving ability, interpersonal skills and personal integrity who must have passed through a genuine selection process. Simply put: lack of transparency, massive corruption in the Nigeria has reduced the amount of money needed for development just as it does in any other political economy. Thus, there is a need to enhance

transparency, bring corruption under control and thoroughly review the lessons of these recent events in this sector. In the end, lack of economic growth and corruption can be wiped out if comprehensive reform is promoted and rule of law improved. Revenue generation can grow exponentially if more individuals adhere to clear, explicit and written rules. Then, the lack of financial growth that has clouded the industry will finally clear out, bringing blue skies to civil aviation in Nigeria. Finally, there must be a behavioural changes on the part of the Nigerian government aimed at eliminating inappropriate behaviours that are designed to exploit and strangle the growth of the industry.

6 Recommendations

Urgent action must be taken to correct the many ills of the sector and set the industry on the path to recovery and prosperity. The following are our recommendations:

- a) A technocrat should always be appointed as aviation minister so as to reposition the ministry.
- b) All aircrafts must be thoroughly inspected to ensure their airworthiness without cutting corner.
- c) The ministry must stop aviation officials and their collaborators who charged for new helicopter parts but installed used parts instead.
- d) The establishment of a national hangar by the Federal Government as no one airline could shoulder the cost of establishing it, this will help in revenue generation.
- e) NCAA should increase the number of safety inspectors (currently only 10 tested safety inspectors for the whole country).
- f) There is a need for a *Special Anti-corruption Court* and strong policy enforcement.
- g) The Presidency should show leadership by ensuring full accountability in the sector and by also making sure that the management of the ministry is fully compliant with anti-corruption legislation and treaties that Nigeria has ratified.
- h) Anti-graft agencies need to sell the properties obtained from corruption in the industry as perpetrators would know that they will not be allowed to profit from their crimes.

REFERENCES

- [1] Abiodun Badejo, (2012) Corruption in aviation sector caused the plane crash – Buhari, CPC <http://dailystar.com.ng/>
- [2] Chinedu Eze, (2012) Aviation: Industry Riddled with Corruption <http://www.thisdaylive.com/news/> 14 September 2012
- [3] Christopher Odetunde, (2006) Partial Defense of the Aviation Minister But Not of the Industry.
- [4] <http://en.eikipedia.org/wiki/aeronautics>
- [5] <http://english.caixin.com/editorial/> Clear Corruption from Aviation's Skies, 6 July 2010

- [6] <http://www.bbc.com/news/world-asia-china-29797985>, China 'to protect whistle-blowers' amid corruption fight, 28 October 2014.
- [7] <http://www.envisionnigeria.com/> Nigeria's Aviation sector weak, stagnant — Report, 2013
- [8] <http://www.indepthnigeria.tumblr.com/> E-X-P-O-S-E-D: How Aviation Minister Stella Oduah Forced Cash-Strapped Aviation Agency to Spend \$1.6 Million On Two BMW Armored Cars For Her, 15 October 2013
- [9] <http://www.qantas.com>, Qantas Airways Limited, Working Toward Our Vision: An Overview of Qantas Group Business Practices
- [10] Kayode Oladele, (2013) Causes and Consequences of Corruption: The Nigerian Experience, <http://chatafrik.tumblr.com/>
- [11] Kenneth Ehigiator, (2013), Vanguard: Nigeria: Frightening Revelations - Why Planes May Keep Dropping Off the Skies, http://allafrica.com/transport/?aa_source=aans-tags-top
- [12] McFarlane K., Cross M., Gross N., Mosher D., (2010) Mitigating corruption risk Perspectives for Aerospace & Defence industry, Deloitte Development LLC.
- [13] Mu'Sodiq Adekunle, (2013), Aviation Car Scandal: Jonathan Should Sell Armored Vehicles – SERAP <http://dailytimes.com.ng/>
- [14] Nkem Osuagwu, (2013) The Unending Crises in Aviation Industry, <http://www.leadership.ng/news/071113/katsina-reps-exchange-blows-over-nass-seat>
- [15] Nkem Osuagwu (2014), Why Professional is required as Aviation Minister, Leadership, Tuesday, February 18, 2014, page 20
- [16] Onwukwe, D., 2014, The Controversial Arms Deal, Dailysun Tuesday, September 23, 2014, page 21, <http://www.sunnewsoline.com>
- [17] [Simon Tumba](#) (2013), Strange shindig in Nigeria's aviation sector
- [18] <http://www.businessdayonline.com/category/personal-finance/>
- [19] Tidd, J., Bessant, J., & Pavitt, K., (2005) Managing Innovation Tools: SWOT Analysis. <http://www.wileyurope.com/college/tidd>
- [20] Udeme Ekwere , (2013), FG urged to stem corruption in aviation sector, <http://www.punchng.com/am-business/>
- [21] Zenglein M. J., and Müller J., (2007) Non-Aviation Revenue in the Airport Business – Evaluating Performance Measurement for a Changing Value Proposition, Berlin School of Economics, WWW.GAP-PROJEKT.DE