Research Article

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A Sociological Perspective on the Impact of Technology on Airport Management in Nigeria

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Abstract

This paper focuses on Sociological Perspective on the impact of technology on airport management, with focus on Nigeria. Its general aim is to ascertain the impact technology has on airport management; in particular: 1). To find out the implications advances in technology has on airport security management, 2). ascertain the implications of advances in technology on job retention for airport workers, 3). examine the impact of technology on airport users'experience, and 4) identify policy-based recommendations for a way forward. To achieve these objectives, the paper employed qualitative descriptive method; the use of tabulation, and graphic illustration in its analysis. For the sake of proper understanding, and with the aid of extrapolations, a Sociological theory, 'Functionalism', was adopted as the theoretical framework. In its expected outcomes, the study revealed the type of relationship between the two variables (technology and airport management), and the implications for Nigeria as a whole, and airport stakeholders in particular. A few of the findings include: technology has both positive and negative impact in Nigeria's airport management processes; it assures airport users'advantage, as well portends risk; it aids airport workers' workflow convenience, as well portends future job loss, etc. The paper therefore recommends, 1. Nigerian government should embrace the global advances in airport technology but at the same time brace up for its discontents; 2. Airport users should be technology-compliant to enable them appropriate the advantages of new airport technologies and manage its discontents as well; inter alia .

Keywords: *Technology; Management; Airport; Airport Management*

1. Introduction

1.1 Background

To be sure, the problematique of any sociological imagination --to speak in its sociologese or professional lexicon -- as regards its sociological enquiry in studying the society is, to know how social order (homeostasis) may be possible within the social system with regard to its inevitable interaction with its parts or sub-systems, given the latent or immanent contradictions that such interactions may reproduce -- be it political, economic, cultural, social or even technological; and not just about the interactions between the larger system (society) and its parts, but how the parts in turn interact with one another to ensure social equilibrium needed for maintenance or endurance of human society. To that, the objective of this paper to examine, sociologically, the interaction between technology and airport management, and what implications such interactions between the two variables or the two subsystems hold for Nigerian society, is by no means epistemologically appropriate --in a sociological sense, per se!

In this paper, therefore, we establish here that our independent variable (which causes the other variable to behave in some way) is, 'technology impact'; while our dependent variable (which is acted upon by the independent variable) is, 'airport management'. Technology connotes the application of scientific knowledge to the practical aims of production or productive uses to improve the human condition. Airport management, on the other hand, connotes effective and efficient administration of airport operations/processes to enhance productivity. And the nexus between the twin variables, in line with the thematic subject of the paper, presupposes what outcomes (be it positive or negative) that the impact of technology (the independent variable) holds on airport management (the dependent variable).

Globally, essentially in the advanced nations, like the USA that is more prone to terrorists attacks, aviation security and the need to pursue technology-based solutions in tackling insecurities at the airports, are primal in their airport management processes/policies; especially, since the historic 9/11 terrorists attacks on the World Trade Center and the Pentagon that has remained indelible in USA history. Similarly, as a dividend of globalization process, less advanced nations of the Global South, like the African countries, have equally started embracing the trend of the evolution of new technologies in airport operations like the advanced nations. If nothing, the outbreak of COVID-19 pandemic is enough catalyst to trigger Africa's interest to embrace new technologies and improve efficiency and security in their airport management processes. For instance, according to the study conducted in August 2020 by Airports Council International (ACI) on 4,100 travellers in 30 countries globally, to evaluate the rate at which travellers are most likely to repeat their travels inspite of the prevalence of the fear-gripping pandemic; the survey revealed that 97% of the respondents who travelled in 2019 intended to travel again inspite of the COVID-19, with majority or 61% of the respondents from the African region (ACI, 2020). Thus, signifying that majority of the respondents from Africa were quite confident that their airports are compliant with the use of technology-based contactless devices for a safe environment for a better air-travellers' experience amidst the ravaging COVID-19 pandemic anxities; even though African region still lags behind in the use of new airport technologies vis-a-vis the advanced nations. Nonetheless, some countries in Africa like, South Africa, Morroco, and Ghana have started embracing the evolution of new technologies for their airport operations (ACI, 2020).

Nigeria is not left out in this trending embrace of new technologies in airport management processes. According to Ileoje (2003), by realizing the role of airport transport system in Nigerian economy, the government embraced the idea of developing its airport infrastructure (like deployment of information communication technology/ICTs) and its manpower to improve airport users' experience in the aviation industry. As praxis, from the backdrop of the foregoing, advances in new technologies in airport management processes hold a positive implication for all airport stakeholders. But could there be a backlash or discontents of the impact of technology on airport

management, and/or on people's lives, generally, in Nigeria? -- This paper is inclined to find out as part of its raison d'etre!

1.2 Aim

The main aim of this discourse is to ascertain the impact Technology has on Airport Management. In particular, it is aimed at, 1. Finding out the impact technology has on airport security management; 2. Ascertain the implications of technology on job sustenance for airport workers; 3. Identify the impact of technology on airport users' experience; and 4. to proffer policy-based recommendations for a way forward.

1.3 Conceptual Clarifications

Under this rubric, certain thematic concepts are clarified for proper understanding. These include, Technology; Management; Airport; Airport Management. They are clarified, as follows:

1.3.1 Technology.

The word, 'Technology', from its epistemic origin, was derived from a Greek lexicon, "techne(technique) meaning, craft or skill. Literally, therefore, it means science of craft (Liddell and Robert, 1980). It is simply, the application of scientific knowledge to the practical aims of human life or needs. Besides, it connotes the integration of the human productive know-how, both in its physical and mental expressions , into a mechanical device for the purpose of accelerating the process of production (Ninalowo, 2004).

1.3.2 Management.

Simply defined, management is a process of planning, controlling, cordinating and directing the resources of an organization to attain an organizational aim. Its functional processes include, planning, organizing, coordinating, controlling, directing, and monitoring. Management can also mean the team of managers (usually senior managers) who are in charge of running the management processes of an organization. However, for the sake of the study, the research dwells more on the art of management not the management team.

1.3.3 Airport

In its best simplification, airport means a complex of runways and buildings for take-off, landing, and maintenance of civil aircraft, with facilities for passengers and cargo operations. That is, it is a site for take-off and landing of commercial aircrafts. Its other technical jargons include, air terminal; aerodromes; or airfield.

1.3.4 Airport Management

Drawing inferences from the foregoing conceptualization of 'airport' and 'management'; airport management, therefore connotes the administration of airport including the airlines operating within it. Besides, airport management entails the whole gamut of planning, organizing, coordinating, directing, and controlling of the airport operations.

2. Review of Related Literature

With the rising interests in advances in technology and its impacts in recent times, especially with a

particular interest on the impact of technology on Airport management, corpuses of literature on the subject matter have emerged. A few of these literatures have been reviewed; and some salient themes relevant to the study have been adopted for the literature review. The themes considered relevant for the study are outlined, hereunder:

1. Technology --An Overview
2. Management, and Airport management --An Overview
3. The Nature of Technology in the Management of the Airport.
4. Factors Militating Access to Technology in Airport management.
5. Evaluation of the impact of Technology on Airport management.
6. Implications of the impact of Technology on Airport Security management.

2.1 Technology: An Overview

One of the high premiums of the dividends of industrial revolution (circa, 1760 and beyond) that first began in Britain before its reverberations in other parts of the world --that marked the watershed of machine application to productive uses to replace manual labor--is the technological application to mode of production or mechanization of labour. As society keeps evolving, mankind will continue in the pursuit for newer and better solutions for solving its social problems for the amelioration of the human condition. Thus, technology creates these solutions through intellectual discoveries and/or innovations; thereby carving out for itself a center-stage in industrialization and scientific research space.

Technology is the integration of the human productive know-how, both in its physical and mental expressions, into a mechanical device for the purpose of accelerating the process of production (Ninalowo, 2004). Etymologically, the word technology means "science of craft" (Liddell and Robert, 1980). From its Greek epistemic roots, it is a derivative of the word, "techne (technique)"; meaning, 'craft or skill'. That is, the study of the use of skill. To that, it includes all tools, machines, weapons, instruments, transport and communication devices, and the skills by which we produce them and use them. However, in the process of time, and as the term 'technology' rose into prominence in the 20th century sequel to the 2nd industrial revolution of the twentieth century, the term also advanced in its connotations. Thus, Scientists and Engineers in the contemporary times perceive it from the frame of reference of applied science or application of scientific knowledge (Mackenzie and Wajcman, 1999) into necessary uses. In this context, technology may connote the use of scientific skills, technical methods, processes, tools and raw materials to solve human problems or satisfy societal needs. Technology is usually a function or a corollary of science. That is to say, technology springs from the application of scientific knowledge. Science is a systematic knowledge acquired through methodical or systematic principles. Thus, through the application of scientific methods several tools of advance technology may emerge like, computer technology, wireless communication technology, etc. Hence, technology connotes, the application of scientific knowledge to the practical aims of human life (Guston, 2000).

Technology covers wide spectrum of mechanized productive uses or scientific application of knowledge which ranges from, material technology (like metallurgy, industrial ceramics, etc.); Energy technology (e.g. petrol refinery, energy conversion, etc.); Food technology (e.g, food preservation technology); construction technology (like building construction, inland waterways, tunnels, etc.); Transportation technology (aerospace/aviation industry, ship construction, etc.); Communication technology (information processing, computers, telecommunications, etc.); Medical technology (pharmaceutical industry, Diagnosis, etc.); to military technology (war drones, nuclear weapons, missile systems, armoured tankers, etc.), inter alia.

2.2 Management and Airport Management: An Overview.

Management is universalistic in nature --that is, it cuts across all spheres of human endeavors geared

towards attaining positive outcomes needed to meet group visions or goals. Hence, it refers to coordinating these activities or endeavors towards goal attainment effectively and efficiently. Several authors and scholars in their various scholarships have viewed management from their nuanced orientations or varying frame of references. For instance, Peter Drucker (famed to be the father of modern management) defined management as, a multipurpose organ that manages business and manages managers, workers and work (Choudhary, 2018). To Peter Drucker, the essentials of management include, managing the business processes as well as the people. In his book, 'The Practice of Management', Drucker affirmed that the aim of management should be to innovate (Choudhary, 2018). That is, management is anchored on bringing about new ways of doing things so as to enhance organization productivity. This viewpoint lends credence to the need to embrace new technologies in organizational management to enhance productivity. Besides, Henry Fayol (another management guru) saw management as, to forecast and to plan, to organize, to command, to coordinate and to control (Gulshan and Lallan, 2011). That is, to Henry Fayol, management embraces 5 functions: planning (forecasting), organizing, commanding, coordinating, and controlling. Additionally, Fredmund Malik was very succinct and yet point blank when he defined management as, the transformation of resources into utility (Ann, 2013). The various definitions notwithstanding, the common denominator of the various perspectives on management concept translate to effective and efficient utilization of human and non-human resources to achieve organizational goals. What then is Airport Management?

Airport management is the administration of the airport operations. It therefore includes the activities of setting the strategies of airports to gather and provide information on airline commercial and operational prorities (Wald, et al. 2010). Infact, it covers a broad range of the airline management. Airport management is also an academic field of study that teaches management of airports and airlines (Nadu, 2011). However, the study is interested more in the administration of airport activities as a functional process not as an academic field of study. Airport management entails the whole gamut of planning, organizing, directing, controlling of airport operations.

The aviation industry is a critical element in Nigerian economy, especially in the transportation sector of the economy. For effective and efficient airport management in Nigeria, there is need for improved aviation infrastructural facilities at the airports, improved modern weather forecasting technological equipment, and highly skilled and technology-savvy manpower to ensure safety and comfort of the flying public. Although, the aviation industry contribution to Nigerian GDP has slumped in recent times by 50% (Punch, 21 Oct 2021) due to COVID-19 pandemic and redundancy at the airports, yet in Q.2 of 2021, out of the N209.79 billion contribution of the transport sector to Nigerian GDP, air transport was the second largest contributor with N12.22 billion (Punch, 21 Oct 2021); hence, the need for state of the art technology to enhance productivity and achieve more in the transportation sector. Supporting this, ThisDay Newspaper (September 10, 2021) noted that aviation experts were of the opinion that improved infrastructure will boost the aviation industry and increase transport sector contribution to the Nigerian GDP. Aviation is unarguably a major driver of globalization and development in the contemporary world. For instance, over a third of the global trade by value is carried through air transportation (Business Day, December 9, 2021). Hence, proper attention should be given towards effective and efficient management of the airports. As Business Day (December 9, 2021) observed, more than ever, there is need for the acceleration of the transportation sector of the aviation industry. And effective and efficient management of the airports is very key in this direction with a decisive embrace of top-notch technology in the airport management systems and processes. According to the Nigerian minister of Aviation, Hadi Sirika, International Airport Transport Authority (IATA) projected that air transport market in Nigeria under the current trends will grow by 174% in the next 20 years (The Guardian, 25 March 2022). This lofty order can only be achievable with efforts towards effective and efficient management of airports in Nigeria with technology-driven solutions.

2.3 The Nature of Technology in the Management of the Airport.

Airports that are technology-driven in its management processes will integrate travelers' confidence especially in terms of safety and security. This is noticeable in their operations which become seamless and efficient because of the utilization of new technologies in its operational processes -- like its communication processes, flight control, security operations, intelligence gathering, etc. The right equipment makes it easier for Nigerian airports to adapt to new challenges: like the use of video security solutions that can help in identifying potential threats; automated and integrated access control solutions that can enhance surveillance at the access control points; use of cyber security systems to secure airport operations; facial recognition technologies; construction of healthy buildings configured with new softwares that can detect fire incidence ahead, all stress the nature of technology in airport operations management.

As a result, airport authorities and/or the aviation industry in their airport management processes are seeking out ways to doing things differently, technology-wise. Some airports authorities for effective and efficient airport management use technology-driven solutions for a better airport experience, and have started adopting industry 4.0 digitalization technologies. Although, it is gradually gaining grip within the airport environment, it will continue to remain relevant in the digital information usage in developing future airports in this era of COVID-19 pandemic. Some modern technologies that can boost effective and efficient management of the airport can be seen in Table 2.3(1) below.

Table 1: Modern technologies for effective and efficient airport management

Technology Category	Description
1. Data Analysis and Processing	Technologies used for information processing.
2. Simulation, Visualization and Modelling	Technologies used for increased perception, visualization, and utilisation of information.
3. Cloud Computing	Technologies to enable the delivery of computing services over the internet.
4. Internet of Things (IoT).	Technologies that make use of intelligent devices and sensors for communication and presentation of information.
5. Mobile Smart Devices	Technologies that are portable and makes use of mobile terminals for accessing information.
Additive Manufacturing	3D Printing Technology for product development and customization of goods on a large scale.
Cyber Physical Systems (CPS).	Systems or networks that make use of autonomous elements involving human-machine and machine-machine interfaces to coordinate and automate processes.

Source: Tan and Masood (2021).

The Federal Airports Authority of Nigeria (FAAN) is saddled with the monopoly of managing airports in Nigeria. Part of its airport management functions as contained in part 11 of the Federal Airports Authority of Nigeria Act of 1996 as amended in 1999 involves providing effective and efficient ways of handling airport operations to achieve a better and satisfactory airport experience for airport users. Therefore, to achieve that, utilization of state of the art technologies should be its execution strategy.

2.4 Factors Militating against Access to Technology in Airport Management in Nigeria

Advances in technology in airport management holds immense benefits capable of ensuring effective and efficient airport users' experience. However, some factors can hinder airport stakeholders from accessing these benefits. A few of these factors include as follows:

2.4.1 Technological Backwardness

Technology-wise, countries of the Global South (Third World Countries) including Nigeria are technologically backward. Most of these underdeveloped and/or developing economies are still trapped in the use of traditional and out-of-date equipments in their production processes. Supporting this, Silling (2019) noted that there is currently digital Technology revolution (latest technological developments such as artificial intelligence (AI), Machine Learning (ML), Blockchain technology, etc) in the aviation industry, but the aviation industry still remain stuck or laid back in legacy processes and decades old Technology which even contribute to their low profit margin. According to Jhingan (2005), one of the characteristics of underdeveloped nations that has kept them back from keeping up with the paces of development and growth like the advanced economies is technological backwardness.

2.4.2 Huge Capital outlay and poverty

Most of the modern technologies are capital intensive. Most developing economies with financial constraints find it difficult to have access to the latest technologies in airport management. Supporting this, the Vanguard (July 20, 2021) reported that, the aviation sector in Nigeria requires huge Capital for infrastructural development; and as a way forward, the remittances of 25% of their internally generated revenues (IGRs) should be retained for at least ten years to help the aviation agencies (including the airport management authority/FAAN) to upgrade their facilities with current technologies.

2.4.3 Poor leadership and leadership myopia

Sadly, our leaders are not technology-driven. Most of them are very conservative in following the modernization trend and hardly update our infrastructures with the current trends in the technology revolution. They are myopic or short-sighted in appreciating the operational convenience or advantages that technology affords for effective and efficient management of airports. Corroborating this, Silling (2019) observed that most aviation leadership teams (and/or airport management team leaders) have been set up with more traditional management mindset where digital and customer centricity have been underestimated and misrepresented. Thus, airport top management team leaders due to leadership myopia have not realized the imperativeness of the current digital technology revolution in the industry.

2.4.4 Corruption

Corruption is quite endemic in Africa's socio-political structure, especially in Nigeria where the vested interest of the political class -- rather than upholding the popular interest of the citizenry -- has become, very pathetically, the current reality. This manifests itself informs of, looting of public funds, over invoicing, misappropriation of funds at high levels. Funds which should have been channeled towards procurement of new technological infrastructure are misappropriated for private gains. Nigeria has high notoriety in embezzling public funds. These are funds that should have been channelled into judicious productive uses like advances in technology.

2.4.5 Wrong Choice of Vendors/Suppliers of technology solutions

Some airport management authorities can make wrong choices in selecting their vendors for the supply of airport technological solutions. This can be attributed to lack of IT knowledge by airport managers in being able to assess real quality and professionals in the supply of airport technological solutions. Besides, the wrong choice can also be attributed to "kick-back" or graft syndrome that has

bedeviled Nigeria cultural milieu, where contracts are given out to vendors based on the supplier that can grease their palms with huge commissions or "kick-back"; which ends up attracting the wrong vendor or supply of poor quality airport technologies as the supplier would want to recoup his expenses spent as "kick-back" in the contract.

2.5 Evaluation of the Impact of Technology on Airport Management

Advances in technology in airport management have both the desirable side and its aspects of functional discontents or backlashes. One of the principal weaknesses of the economy that can pose a challenge to a nation's economic growth and/or an organization's productivity is underdeveloped infrastructure; in a similar vein, one of the major characteristics of an underdeveloped country is technological backwardness (Jhingan, 2005). Thus, advances in technology holds strong positive outcomes for a nation's economic growth. Technology helps to ensure strong and efficient infrastructural development both at the micro level of departments like airport authority, and at the macro level of the entire nation's infrastructural development. Advances in technology in the infrastructural sector of the economy provide state-of-the-art utilities that improve the human condition. This is highly imperative because infrastructures are the basic pillars upon which all economic activities in an economic system depend upon (Akinboyo and Faniran, 2006). It is technology that can deliver efficient infrastructures that can boost a nation's economic growth. For instance, as Akinboyo and Faniran (2006) cited, it was the application of technological devices like the information technology (ICT) that resulted in significant improvement in Singapor's ports operational productivity in recent times. Similarly, Nigeria could witness such significant improvement with the use of new technologies in our airport management.

Additionally, technology assists the airport operators in their management processes to lower costs while uplifting the service quality and thereby enhancing the efficiency, reliability and sustainability of airport operations as well as complies with the safety regulations at the utmost priority (Ku and Chen, 2013). Furthermore, creating healthier and sustainable airports that are technology-driven will rebuild airport users' confidence both now and for the foreseeable future -- e.g with the use of Thermal cameras that assess health risk at Access control points, prevent spread of infections; with the use of healthy technology-driven terminals and integrated safety and security systems, a safer, more secure and more cost-efficient environment would be created in our airports. Thus, growth in technology in our airports management processes creates healthier and sustainable airports.

According to Herbert (2017), new technology is revolutionalising airport operations globally. It is making flights more efficient and eco-friendly. It is helping to improve security and enable effective and efficient planning, while aiding a better airport users' experience. Typically, the use of Blockchain technology can transform airport operations. Data entered into the Blockchain would allow airport users to track the structural parts of aircrafts and detect exactly who handled it and when; thus, bringing security and safety to new levels. Figure 2.5(1) below graphically illustrates the impact of technological applications on airport operations management.

Figure 1: Showing Impact of Technological applications on Airport operations
Source: Ian Herbert(CEO, VISTAIR Inc.) (29th September, 2017). How Technology can improve Airport Operations. Bristol (UK): VISTAIR Systems Inc.

Although, Technology holds great dividends in airport management processes, it equally have functional discontents or drawbacks. For instance, it erodes workers skills and reduces the workers to redundancy, what some scholars have termed as 'degradation of labor' (Ninalowo, 2004). Expounding more on this perspective, Ninalowo (2004) citing example with the rise of computer technology pontificated that, "the greatest preponderance of integration of human physical and mental capabilities into a technological device is witnessed with computerization. While this human achievement has the manifest or (intended) consequence of productive efficiency. By the same token, it also has the latent consequence of labour redundancy or de-skilling" (p.6). The process of productive technological application has historically evolved at the primary levels from simple mechanization to automation to modern form of computerization (Ninalowo, 2004). Beyond these levels, technological applications will still continue to evolve; scientific researches are still underway to get mankind to a stage of full robotic technology where human activities will completely be carried out by robots. And mankind will be ushered into utter redundancy and completely de-skilled! What this means is that, there is high rate of job insecurity awaiting mankind in the future as mankind advances in technology.

Besides, there is the discontent of social disconnect attached with advances in technology in airport management. This implies that the work life of the airport workers will be reduced to mechanical or "machine" sort of life rather than their normal social life. A situation where workers will have more interface with machines than with fellow human beings. This can lead to social isolation that has psychological consequences. Again, it can cause breach of privacy. With digitalized technology at the airports, private data are no longer safe. New digital technologies can easily penitrate or hack through private information without the owner noticing. For instance, digital cameras watch and record people's movements in public places without them noticing.

Similarly, the discontents of media manipulation and crime hike. With digitalized technology at the airports, documents, photographs, audios, etc can be hijacked, edited, photoshopped for criminal intentions. Furthermore, it requires huge capital to maintain. Digital Technologies have life spans. As newer versions comes into marketplace, the previous ones become obsolete, and one keeps spending funds to update and upgrade to newer versions. Thus, it creates tremendous waste and inefficiency as older ones are no longer useful, and discarded.

2.6 Implications of the Impact of Technology on Airport Security Management.

Airports are one of the most probable victims of terrorism and other criminal actions that can pose danger to security of lives and properties. Since the 9/11 incidence of terrorist attack on U.S Towers, and the magnitude of horror it kicked up globally, it became imperative that sensitive places like airports which could be a convenient ground or easy route for such transnational terrorist attacks

should be beefed up with security infrastructure like state-of-the-art technological facilities to ensure security of the airports. Thus, 9/11 became a wake up call for many developing countries to start planning and implementing better strategies in their airport security management. Today, high-tech solutions are helping many countries to achieve this strategic plan in nations' airport operations management.

According to the research conducted by Ates (2019) on the 'Effects of technology changes on airport security personnel: Age-related analysis', out of the total respondents of 276 security personnel, majority of the respondents or 59.8% agreed that with the introduction of new technologies in airport security management, there was a corresponding significant increase in the level of security at the airports. Thus, drawing inference from this research, one may conclude that the impact of technology on airport security management holds positive outcomes. Some of these positive implications are addressed as follows:

First, it will bring about the training of the security personnel for efficient handling of those new security technologies, which in turn ensures human capacity building for the airport authority, and for the country; as well as ensuring personal development/ growth of the personnel. Besides, it ensures safety of lives as technological gadgets or devices are used at the airport terminal access control points; this helps to identify potential hazards and threats. Advances in technology in airport security management ensures security at the baggage scanning points, ensures security at the aircraft waiting in the apron parked against external attacks, ensures security at profiling and checking of travel documents while boarding passengers, and ensures safety of cargo loading. Typically, airport technologies like Reflective X-ray imaging systems, 3D Millimetric Wave Scanners, Biometric security systems can achieve the aforementioned security services at the airport (Elias, 2009; Sweet, 2009; Sheen, McMakin and Hall, 2001).

However, in spite of the foregoing positive implications of technology on airport security management, it has some negative implications as well. This include as follow:-

2.6.1 Psychological implications.

It has psychological implications on the attitudes and behaviors of the airport security staff. It can cause them boredom, social isolation as they interact more with these security machines more than they interface with humans in their routine security jobs. Supporting this, Dertli (2008) opined that, technological advances in airport management systems has emerged as psychological effects on workers -- monotony and boredom, fatigue, stress and anxiety; as the airport personnel stays glued to the security devices.

2.6.2 Training cost

It will require additional personnel overhead cost where airport security personnel that are not IT savvy have to be trained at a huge cost to handle the new technologies. Most of them are even sent overseas to expensive training institutions to acquire the technical skills to handle the new technologies.

2.6.3 Health hazards.

Most of the technological devices used for security operations emit high rate of electromagnetic waves which is deleterious to health. Electromagnetic waves cause health problems like headaches and insomnia (Dertli, 2008).

3. Theoretical Framework

A theory is an explanatory framework or a set of ideas that provides explanation for a social

phenomenon. Under this section, a relevant theory is identified; and by means of intrapolations and extrapolations, its epistemic undercurrents are employed to explain the relationship between the variables (Technology and Airport management) under study. A Sociological theoretical model, Functionalism, is hereby identified.

3.1 Functionalism: An Overview

Functionalism is one of the sociological theories developed by sociologists in interpreting the social facts of human society. It sees human society as being interconnected; therefore, a change in one part can cause a change in other parts as a whole. Its basic unit of analysis is society; and its various parts are understood essentially in terms of the relationship of the parts to the whole. Thus, social institutions like the family system, the political, or economic system etc are seen as a part of the interconnected whole. Its thesis assumes that the social system (society) has needs for its existence or maintenance, called 'functional prerequisites', and each of the parts function positively towards meeting these societal needs. Therefore, the theses of functionalism are reducible into a few doctrines of principles. First, the principle of societal unity: all parts (the sub-systems or social institutions) work in unity. Second, the principle of universal functionalism-- meaning, all parts have positive functions. Again, the principle of indispensability' --that is, only these parts can perform their functions without any functional equivalents or alternatives.

3.1.1 Critical Review/Evaluation of the Functionalism Theoretic Postulates

Although, functionalism in its thesis has adroitly projected the relevance of parts of society (sub-systems) in contributing to the maintenance of society. However, its thesis leaves room for a counter-thesis or critique. By way of critique, the theory has certain drawbacks. First, its principle of functional unity is a bit flawed or doubtful. It is hard to accept that all the parts of society always work in unity for the benefit of the whole. Sometimes, there can be a 'functional autonomy' of a particular part that does not contribute in unison with other parts. The institutions of society are run by human beings who are dynamic in nature; for instance, it is possible that while every other social institution are working together for the integration of the society, the political or the religion institution may rather be creating divisions in society.

Again, its principle of functional universalism is also flawed. It assumes that all parts of society are universally playing positive functions. This is still doubtful. In reality, there is always 'dualism' of life: good or bad; left or right; merit or demerit, etc. It is not possible that the parts of society are wired only for positive functions; Robert K. Merton (Haralambos and Holborn, 2013) in his theoretic variance to functionalism principles, demonstrated that there could be a possibility of a particular system being functional or dysfunctional or even non-functional. For instance, technology can be functional to society as it provides innovative and convenient ways of carrying out task; it can also be dysfunctional, where it causes workers to lose their jobs as technological devices take over those jobs. More so, its principle of functional indispensability is hard to accept. In reality, there are always functional alternatives or equivalents of carrying out the same task. For example, family institution functions to teach morals to the young; education and religion institutions can perform similar task. And in terms of technology and airport management under study, manual or human skills can as well be chosen as an alternative in airport operations over application of new technologies.

However, the weaknesses of functionalism notwithstanding; its strength lies in the fact that, it has been able to project the positive functions of societal systems, like the impact of technology on airport management processes.

3.1.2 Contextualizing the Relevance of the theory of Functionalism to the study

First, the theory of functionalism is relevant to the study, in that it has been able to project the

positive functions of societal systems, like the impact of technology utilization on airport management processes. Specifically, its thesis has helped to show that a part of society, Technology infrastructure, has positive functions for the maintenance and integration of life in society, where advances in technology positively functions to ensure effective and efficient airport management; thus, thereby defining a positive relationship between the two variables under study. For instance, with the application of new technologies, organizations like Federal Airport Authority of Nigeria (FAAN) can introduce administrative convenience to their work systems and processes which further enhances a better airport usage and airport users' experience. Additionally, and in contradistinction, the theory is equally relevant as it underscores (from the critique of its theoretic postulates) that the independent variable (technology) can portend a latent negative impact or dysfunction on airport management processes: it causes alienation and/or loss of man's natural skill as technological devices take over man's natural job. Thus, from the frame of reference of Functionalism, the independent variable (Technology) is very functional in impacting effective and efficient positive outcomes on the dependent variable, 'Airport management; and by way of critique, can equally pose a negative impact on airport management.

4. Findings

From its investigations, the outcomes of the study reveal the following:

1. Advances in technology have both positive and negative impacts on airport management.
2. Technology aids effective and efficient security management at the airports with the use of new Hi-Tech devices in crime detection at the airport; and can hamper security as well with the rise of cyber crimes aided by new technologies.
3. Technology enhances operational convenience in the workflow of airport workers; and as well portend future job loss for the airport workers as new technologies replace human skills.
4. Technology assures airport users' advantage or positive user's experience, and portends danger for airport users as well, since their private data can be hacked with the advances in technology.

5. Conclusion and Recommendations

In view of the above findings, the paper therefore concludes that, there exist a positive relationship as well as a negative relationship between the twin variables: that is, advances in technology can impact positively as well as negatively on airport management in Nigeria. Thus, the paper recommends as follows:

5.1 Recommendations

1. Nigerian government should embrace the global trend in advances in airport management technology, but should equally brace up with implementable strategies to mitigate the Hi-Tech discontents that will increase at our airports in the process of time.
2. Airport users should equally be technology compliant so as to appropriate the advantages of new airport technologies and be able to manage its discontents as well.
3. The government should train airport personnel for effective handling of the new technologies to ensure a satisfactory airport users' experience.
4. Airport workers should start learning other skills as a buffer for future job loss that may ensue due to advances in technology.

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