Application of the Smart Card Reader (SCR) In the Conduct of Elections in Nigeria: An Appraisal

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Abstract: The focus of this study was to determine the dependability or reliability of the Smart Card Readers (SCR) in elections in Nigeria. SCR is an electronic Gadget adopted by INEC in 2015 for the conduct of elections with a view so as to have free, fair and credible elections in the country. Thus, the gadget was introduced to check electoral malpractices such as rigging, intimidation of voters and contestants, snatching of ballot boxes, and other challenges which have bedevilled Nigeria's democracy for years. From the analysis of data cum discussions, the paper revealed that widespread electoral malpractices are the fundamental reason for the introduction of Smart Card Reader in Nigerian elections. Furthermore, the study found out that there is a significant relationship between the use of Smart Card Reader in elections and the credibility of election results in Nigeria. Finally, the study also revealed that technological constraints and corruption (collusion of INEC officials and government) are some of the problems associated with the Smart Card Reader. Against this backdrop, the study recommends that the government should take necessary steps to make the use of the Smart Card Reader and its enforcement constitutional as it has helped to reduce the hitherto clandestine electoral malpractices among others. Also, the government should embark on necessary measures to tackle the challenges of frauds, posing a serious obstacle to enthroning fair and credible elections in Nigeria. Furthermore, that INEC should deploy high quality Smart Card Readers in elections in Nigeria as it will aid to curtail cases of Card Reader malfunctions in elections and also make use of well-trained ICT staff in the use of Smart Card Readers in the conduct of elections in Nigeria.

Keywords: Smart Card Reader (SCR), Election, Election Management, Nigeria

I.   INTRODUCTION

Elections in Nigeria have been rather problematic since independence, compounded by experiences of military coups and dictatorships. Starting from when Nigeria had its maiden civil rule in first republic after independence to recent times, electoral processes have been a catalogue of thuggery, ethnicity, religious divide, rigging of elections, god-fatherism, ballot box-snatching, destruction of electoral materials, hate speeches by politicians and protracted litigations. Elections that are supposed to be a thing of joy have caused a deep sense of fear among Nigerian citizens, with most people storing food stuffs and arranging for where to run to with their families in case war somehow ensues. This is because the exercise has become synonymous with killings and maiming of innocent citizens against the backdrop of primitive electioneering campaigns, militarization of the process, vote-buying, under-age registrations, multiple voting, bribery of some electoral staff to re-write election results in favour of the selfish interests of lawless politicians, including other acts antithetical to democracy.

Dele-Adedeji (2019) reinforces the foregoing stating that elections in Nigeria as far back as 1960 to 1966 were characterized by allegations of massive rigging, such as the 1965 elections which engulfed the western region in serious political upheaval and later culminated in Nigeria's first military coup in 1966. After years of military rule, Nigeria returned to democracy in 1979, which saw Alhaji Shehu Shagari of National Party of Nigeria (NPN) elected as the first executive President of the country. Ahmed (2015) disclosed that International observers criticized the said 1979 election to have been massively rigged, and that the 1983 elections four years later was even worse, marked by corruption, political violence and polling irregularities. Thus, the Shehu Shagari civilian government was overthrown on December 31, 1983, in General Muhammadu Buhari-led military coup (Akinwalere, 2013; Ahmed, 2015).

In 1993, Nigeria tried to return to civilian regime again and held a general election, presumably won by late Alhaji Moshood Kashimowo Abiola of the Social Democratic Party, SDP; a general election believed by many to have been free and fair. Unfortunately, General Ibrahim Badamosi Babangida, the then Military Head of state, annulled the election, aborting that transition process. Another electoral process to restore democracy once more to the country came about in 1999, and a former military leader in the person of General Olusegun Obasanjo was elected as the President. However, local and international observers opined that elections conducted in Nigeria in 1999 through 2003 to 2007 et cetera were marred by widespread electoral frauds and violence and as such, the elections could not be said to be free, fair, transparent and credible (Abubakar in Denis Kadima 2016). For instance, a US-based National Democratic Institute proclaimed after the 2007 general elections that the country's electoral process had failed the Nigerian people (Ahmed, 2015). According to Olurode (2017), elections in Nigeria had often filled the air with apprehension and a high sense of trepidation; while Ahmed, (2015) asserts that Nigeria's electoral history has been unpleasant, saying that the country has been tormented by political instability fueled largely by a crisis laden electoral process.

Ayeni and Esan (2018) remark that from 1999 to 2017, the methods of voters' registrations and conducts of elections in Nigeria comprised the use of typewriters, Direct Data Capture Machines (DDCM), Electronic Voters' Register, EVR, including the Smart Card Reader, SCR, and E-collation. However, they noted that registrations of voters for the 1999 elections was done manually, using pen on forms provided by INEC; hence there was neither any database of voters nor technology to minimize double registration thereby questioning the credibility of the 1999 general elections, which they averred were far from reality.

As a result of the chaotic nature of Nigeria's electoral process, there were debates on how to reform Nigeria's electoral system to halt malpractices inherent in it and usher free, fair and credible elections in the country and consolidate the county's democracy, by adopting modern technology-based electoral process (Abubakar in Denis Kadima, 2016). Therefore, the then President of Nigeria, late Alhaji Umaru Musa Yar 'Adua, set up an Electoral Reform Committee (ERC) during his tenure to recommend, among other things, the best method that would stop the flaws associated with elections in Nigeria. The ECR was chaired by Hon. Muhammadu Uwais, a retired Chief Justice of the federation. Thus, the Smart Card Reader (SCR) was introduced and deployed in the 2015 general elections by INEC, under the chairmanship of Prof. Attahiru Jega. Since its deployment in 2015 to 2019 general elections, the use of Card Reader in the conduct of elections have attracted mixed reactions from people and associations. While some people applauded the Smart Card Reader as a technological gadget that would bring the much sought free, fair, transparent and credible elections in Nigeria, many others have been vociferous on the application of the SCR gadget, stating among other reasons, that it is a problematic device that has been failing to achieve its purpose of authentication and verification of the electorate during elections hence it cannot be relied upon to enthrone the free, fair and credible elections the card reader is claimed to enthrone.

There are still some groups of people with divergent opinions, some saying that the application of the Smart Card Readers in elections in Nigeria by the Independent National Electoral Commission (INEC) is illegal, while another said that INEC, as the country's electoral umpire, was and/is constitutionally right to design, adopt and deploy the SCR device in elections in Nigeria. Consequent upon the preceding controversies surrounding the application of the Smart Card Reader in elections in Nigeria, a proper examination of its deployment in the country's electoral process is necessary to find out the specifics of how the SCR device has actually faired, especially pertaining to the complaints of failures of the device at the polls, and the way forward.

II.   LITERATURE REVIEW

Reasons for the Introduction of Smart Card Reader

Prof. Attahiru Jega, the then INEC Chairman, (2010 to 2015), was the first to introduce the use of Card Reader in the conduct of elections in Nigeria. Also known as the Smart Card Reader, SCR, the INEC under Jega applied this novel technology in the country's electoral process during the 2015 general elections (Beetseh and Akpoo, 2015). The Card Reader is an electronic device programmed for the verification and authentication of the Permanent Voters' Cards (PVCs) of the electorate, and a total of 182 000 Card Readers were bought and used across the country in the said 2015 general elections (Abubakar in Denis Kadima (2016).

Before the inception of the card reader, Nigeria first used biometric registration in the 2007 general elections, but this method was devoid of electronic verification during accreditation, and voters were issued with Temporary Voters Cards (TVCs) for use at the elections (Abubakar in Denis Kadima, 2016). But many faulted the use of TVCs for being problematic and inconsistent, which did not enthrone free and fair elections in Nigeria. For instance, scholars and observers described the 2007 general elections to be highly controversial and the worst election in the history of general elections in Nigeria. Thus, Prof. Attahiru Jega in Hitchen (2017) stated that late President Umaru Yar' Adua acknowledged in his inaugural speech that the said 2007 election, which brought him to power was full of irregularities (see Suberu in Abubakar, cited in Denis Kadima (editor), 2016).

Abubakar in Denis Kadima (2016), reinforces the foregoing saying that the 2007 election was characterized by merely allocating of votes to contestants or candidates through political banditry and recklessness. Abubakar added that apart from the 2007 election, general elections held between 1999 and 2011 were worse than earlier elections in the country and in a bid to engender about free, fair and credible elections in the country, the then President of Nigeria, late Umaru Musa Yar'Adua, set up the Electoral Reforms Committee (ERC), chaired by Hon. Muhammadu Uwais (retired Chief Justice of the Supreme Court of Nigeria), to make recommendations in this regard. The Committee had Professor Attahiru Jega (who later became the INEC chairman) as a member.

Consequent upon the series of challenges, scandals, court cases, political assassinations, election rigging et cetera, witnessed in past elections in Nigeria, the Independent Electoral Commission, under Prof. Attahiru Jega, adopted the smart card reader to reduce the mal-practices inherent in it (Beetseh and Akpoo, 2015). Odo (2017) states that many Nigerians, particularly politicians, opposed SCRs technology when the INEC announced it for the March 28 and April 11, 2015 general elections citing, among other things, that the country was not developed for such technology.

On the introduction of the Permanent Voter Cards (PVCs) and the Card Readers technology, Amenaghawon (2015) observes that the deployment was a laudable step which would consolidate Nigeria's democracy, stimulate and build trust in the electoral processes

among the citizens, pointing however that the democratic efforts have their challenges. Other reasons for the introduction the SCR include political thuggery, rigging of elections, double-registration, ballot box snatching and stuffing. Thus, Alebiosu (2015) asserts that the device has ensured credible, transparent, free and fair elections in 2015, and as well deepened Nigeria's democracy. For this, he suggested that SCRs and similar technology should be deployed in future elections in Nigeria.

Prior to the introduction of SCRs by INEC, Nigeria's electoral landscape was akin to a war zone, according to analysts. Experts aver that past elections in the country were a synthesis of electoral violations and acts of violence. Some of these untoward incidents in previous elections include intimidation of voters and officials, multiple registration, collusion by law enforcement agents, incitement during campaigns, inflammatory speeches, slandering of opponents, ethnic and religious sentiments, kidnapping, deliberate time-wasting in election tribunal, hoarding of voters' cards, under-age registration, poor management of logistic support, including hijacking of materials (see Oddih, 2007 cited in Abubakar, in Denis Kadima, editor, (2016).

There was a series of post-election violence here and there in the country before the coming of the SCRs device. Abubakar in Denis Kadima (2016) reveals that after the 2007 general elections, over 800 (eight hundred) people were killed in Kaduna and elsewhere. Scholars and observers were worried that democracy was under serious threat in the country hence there was need to check the ugly situation. Consequently, there was a debate on how to improve the integrity of elections in the country, through the application of technology to modernize electoral processes and reduce challenges associated with them. Thus, Abubakar in Denis Kadima (2016) averred that technology would make the electoral processes cleaner, easier, faster, more secure, reliable and sustainable.

Taking it further, Prof. Attahiru Jega in Nnochiri (2015) argued that the introduction of the card reader would not only bring about credibility, free and fair elections, but would reduce delays experienced in past elections. He also adds that the SCRs introduction would stamp out rigging of elections, alteration of election figures to favour particular candidates, tampering of election results by using dubious INEC officials, thereby making it impossible for any corrupt electoral officer to connive with politicians to pad-up results. He also stated that SCRs would check irregularities relative to accreditation of voters, checking against the crooked ways some people employed in the past to manipulate election results.

Another issue was that of voters' register, which were full of irregularities in past elections in Nigeria. Thus, Prof. Jega in Hitchen (2017: 5) observes that the voters' register lacked integrity with so many data of registered people missing. Jega also revealed in the article that there was evidence of fictitious names in voters' register, with some registered voters bearing the names of international figures…while there were still some bearing the names of trees and rivers.

Characteristics / Functions of INEC'S Smart Card Readers
Research reveals that there are various types of Card readers for different purposes. The Point of Sale (POS) is an example of a Card Reader (Isiguzo, 2015). Nwaozor (2018) says that the Automatic Teller Machines used in the banking industry to read the ATM cards are also a form of Card reader electronic device. As per the card reader device which the INEC used in the 2015 general elections, Odo (2017) states that it is a gadget which authenticates and verifies on election day PVCs issued by INEC. The device, according to Odo, has single core frequency of 1.2GHZ, with Android 4.2.2 Operating System and it has a 'cryptographic technology' that has ultra-low power consumption; a device designed to read a voter's information contained in the embedded chip of a PVC for authentication purposes as well as carry out a verification of the intending voter by matching the biometrics obtained from the voter on the spot with the ones stored on the PVC.

Similarly, Durotoye (2015) adds fillip to the foregoing, stating that the Smart Card Reader is equipped with a highly secure cryptographic technology that is used commonly in devices that need to perform secure transactions, such as paying terminals. He further said that the SCR has ultra-low power consumption, with a single-core frequency of 1.2 GHz and an Android 4.2.2. operating system. According to INEC in Durotoye (2015), the Card Reader units have been subjected to Quality Assurance, Integrity and Functionality testing, and the device has been found reliable in ease of use, battery life and speed of processing; taking an average of 10 seconds to authentic a voter.

Cryptographic technology concerning the Card Reader revolves around the term, 'Cryptography', which is the method of storing and transmitting files or data through coding (encryption) and decoding (decryption) for protection and security purposes. Accordingly, Economic Times (2019) sees Cryptography as a process of converting ordinary text into unintelligible text; storing and transmitting data in such a way that only those for whom the data are intended for can read and process the data. Cryptography is used in many applications like banking transactions cards, computer passwords, and e- commerce transactions (Economic Times, 2019).

Richards and Pawliw (2019) highlight the objectives of modern cryptography as follows:
1. **CONFIDENTIALITY**: the information cannot be understood by anyone for whom it was unintended

2. **INTEGRITY:** the information cannot be altered in storage or transit between sender and intended receiver without the alteration being detected

3. **NON-REPUDIATION**: the creator/sender of the information cannot deny at a later stage his or her intentions in the creation or transmission of the information

4. **AUTHENTICATION**: the sender and receiver can confirm each other's identity and the origin/destination of the information.

Thus, the INEC Smart Card Reader is equipped with high Cryptographic security features or secret configuration codes/keys known only to authorized persons, with the gadget able to dictate cloned PVCs; generate and transmit data or information securely etc., hence proponents of SCRs believe that the machine will enthrone free, fair and credible elections and consolidate democracy in Nigeria. In this vein, Prof. Mahmood Yakubu, the incumbent INEC Chairman, further explains functions of the SCR in Ebonugwo and Adelaja (2018):

> the smart Card Reader performs three functions. One, it confirms that the card is from INEC, not cloned because the machine cannot read a card not issued by INEC. Two. It confirms that the person who presents the PVC is the actual owner of that card because once the card is inserted in the smart card reader, your picture shows, your personal details show; name, date of birth and then we crosscheck the information on the manual register at the polling unit.

The INEC card reader does this verification within 10 to 20 seconds. It has a battery of 3200mAh capacity, which can last for about 12 hours in continual usage when fully charged and hibernates when not in use to save and lengthen the battery life (Guardian, 2015).

However, a critical analysis shows that battery capacity as regards length of performance of a device is not just about measurement in figures such as 12 hours or 3200mAh (milliAmpere Hour) associated with the battery used by INEC's Card Reader. Environmental, hardware and software factors as well as the type of battery in question impact on the capacity or life of such battery (Hasan, 2015; Gaurav, 2018). Again, processors on devices likened to the Smart Card Reader draw power and drain battery at different levels. The type of Chipset on the gadget also plays a role in determining the performance of a battery and how long it lasts when in use. For instance, chipsets on Smartphones that use battery capacity of 3000mAh et cetera, have different optimizations for how they draw battery power; therefore, it is difficult to really know how long a battery will last just by looking at its hardware specifications and mAh capacity (Community Giffgaff, 2019).

Nevertheless, another striking feature of the card reader is that it guards against double registration, which kargbo (2015) says, would ensure that the choice of the majority in election is achieved. The INEC Card Reader is programmed to work only on election days, as a way of preventing fraudulent use, and configured to work at specific polling units hence it cannot be used in another place unless it is reconfigured by authorized INEC personnel (Guardian, 2015).

Equipped with back-up batteries, the INEC authorities have clarified that the Card Readers are specially programmed to work and send data through dedicated lines of all the terrestrial networks in Nigeria, such as MTN, AIRTEL, GLO and ETISALAT (9mobile), and that areas without network coverage would not stop the card readers from carrying out the authentication and verification of voters on election day (Nnochiri, 2015).

Thus, the Engineering Network Team in Alebiosu (2015) says that the ability of the card reader to perform such functions like keeping a tally of the total numbers of voters accredited at the polling unit and forwarding the information to a central database server over a Global System for Mobile (GSM) network makes the card reader most welcome at this point in time in the nation's electoral history.

Apart from authentication, identification or verification by cross-matching voter's fingerprints with that stored on the embedded chip of the PVC, the Smart Card Reader ensures that:

- No person can vote using another person's PVC.
- The Card reader keeps a tally of all cards read, comprising the details of all voters verified as well as those not verified.
- Collected information are transmitted to a central INEC server via GSM data service.
- Information transmitted to the server will enable INEC to audit results from polling units and statistical analysis of the demographics of voting (The Guardian, 2015)

Also, drawing from the major achievements recorded in the 2015 general elections, the strengths of using the Smart Card Reader in elections are characterized by the following:

1. It conferred credibility and integrity, and rekindled trust in the electoral process.
2. It drastically reduced ballot box snatching, over-voting and rigging.
3. In spite of all attempts by political gladiators they could not clone the PVC. All cloned cards were identified by the SCRs.
4. It made accreditation of voters seamless and less rancorous.

5. It has backup information, which can assist in electoral adjudication (in the same way that the PVC has a contactless chip which is not destroyable and contains all vital information about the voter) ... (Abubakar in Denis Kadima (2016))

Adepetun (2019) discloses that the Smart Card Reader has three distinct process layers, which are Biometric software, Hardware interface and embedded scanner chips. The Smart Card Reader technology is, indeed, aimed at establishing credible, free and fair elections in Nigeria. The electronic device is equipped to serve important database purposes. In this vein, the Chief Press Secretary to the former INEC Chairman in Erunke and Opara (2015) discloses that SCR devices have the capacity to provide disaggregated data of voters in male/female and elderly/youth categories-a disaggregation that is vital for research and planning purposes, which INEC could not achieve until now.

Recently, the INEC and some stakeholders have been talking on the need to improve the card reader technology so as to make the system more secure, efficient and curb the lapses encountered in its applications, especially during the 2015 general elections. For the Ekiti State 2018 Governorship elections, the new INEC Chairman, Prof. Mahmood Yakubu, revealed to the media in Abuja that Enhanced Card Reader, ECR, would be used for the elections (Leadership, 2018).

These enhancements revolve around systematic hardware and software upgrade, which the INEC Director, Voter Education and Publicity, Oluwole Osaze-Uzzi, in The Cable (2018) explains that in addition to the existing features, INEC was working to further secure the PVCs and Smart Card Readers thereby protecting them from unauthorized and malicious access.

Card Reader Applications in other Countries
Research shows that the use of electronic machines similar to the SCR in elections has been in existence in some countries for many years. In Brazil for instance, the application of voting machines and/or e-voting system dates back to 1985 'when a computerized election database was implemented by the Superior Electoral Court' (AceProject, 2019). Whereas, after the year 2000 Presidential elections in America, the United States of America Congress passed a law known as 'Help America Vote Act (HAVA) of 2002' to modernize the country's voting system by replacing the lever machines and punched cards voting devices with optical scan and electronic voting systems (ProCon, 2019).

Thus, Nigeria is not alone in the application of electronic devices like the SCR in the conduct of elections. Some countries in Africa have already adopted such electronic voting machines. Aziken (2015) reveals that African countries like Ghana, Kenya, Sierra Leone, Somaliland, Mozambique, Zambia, Malawi, Rwanda and Senegal have adopted the use of biometrics in the registration of voters, stating that the adoption is on the claim that vote rigging in elections starts with rigging of voters' registers. On this premise, Christiana Thorpe, of the Sierra Leone Elections Management, was quoted to have said in a Lecture to the African Research Institute in London in 2011 that 'Credible elections start with credible voter registration' (Aziken, 2015). In this vein, Uzedhe and Okaifoh (2016) remark that electronic voting system would bridge the 'trust gap' that has existed in democratic elections in Africa vis-à-vis' the mistrust among political parties formed and leaned towards ethnic and religious differences.

The card reader technology and other variants of electronic conduct of elections exist especially in the advanced countries of the world. Kargbo (2015) for instance, posits that complex electronic systems of voting in elections are used in countries like India, Brazil, Australia and Belgium. Kargbo (2015) says that these complex systems of electronic voting are an alternative to thumb-printing and casting of ballots in ballot boxes, hence the systems go beyond card readers and accreditation, because elections could be done in the comfort of a voter's chosen location, supervised by electoral officers, in some cases.

The card reader application in the conduct of elections in some African countries met some challenges. The system disappointed during the 2013 Kenyan general elections as the biometrics machines could not read the fingerprints of many voters, compounded by lack of power backup in schools used as polling venues, which forced the authorities to use manual entry during the elections in the country (Ebonugwo and Adelaja, 2018).

When Ghana applied the card reader and biometrics, the system worked in some venues but failed to work in some other places in the country (Isiguzo, 2015). However, the SCRs hitches experienced in Ghana during the country's 2012 general elections were said to be the battery, because the affected SCRs were not fully charged (Guardian, 2015).

III. INEC'S SMART CARD READER APPLICATION IN NIGERIA: 2015-2019

The Smart Card Reader device is a technology, which the INEC introduced to achieve free, fair and credible elections in the country, so that Nigeria's democracy is well consolidated. Alebiosu (2015) reveals that the INEC tested the device in twelve states of the federation on March 7, 2015. The test-run or mock election was to ascertain the workability and reliability of the SCRs. But research shows that the technology has encountered notable challenges across the country since its inception.

Ajani (2015) reports that during the test-run and/or mock election, the Smart Card Readers failed to verify some potential voters, particularly in the northern parts of the country, in which the INEC said the Incident Forms would be used as a substitute for voters

the SCRs failed to authenticate, whereby such voters would manually fill the Incident Forms for them to vote. Olasunkanmi et al (2015) also disclose that in the said mock election, the SCRs batteries went off in many places just within three hours of operation, noting that in Anambra state, the device failed to read the finger prints of some voters even after washing their hands with water; the INEC officials cleaning the affected voters' fingers with handkerchief to no avail.

Notwithstanding the observed shortcomings of the Smart Card readers during the mock elections and promises made by the INEC authorities to correct the lapses, the problems reared their ugly heads during the 2015 presidential and national assembly general elections. Isiguzo (2015) avows that the device disappointed in many places but notably in Otuoke, Bayelsa state, where the SCR gadget failed to read the fingers of the then President of Nigeria, Dr. Goodluck Jonathan and his wife, even after several consultations and tutorials, which made them to go back home. When they came back to their polling centre to try later, the SCRs still failed to read their fingers, forcing the president and his wife to use the Incident Form(s)**.** Adepetun (2018) states that three different Card Readers failed to capture the biometrics of Dr. Goodluck Jonathan, who arrived the Otazi playground polling centre, Polling Unit 13, at Otuoke, his home town, at about 9.20AM.

Isiguzo (2015) also notes that there was delay in reading voters' biometrics by the SCRS during the Presidential election of 2015 because the INEC officials deployed for the election appeared not to fully understand the workings of the SCR machines, adding that in some places, voters were the ones teaching INEC officials how to remove flimsy cover on the Card Reader, whereas INEC authorities claimed to have trained its staff.

For instance, some challenges observed in the application of the SCR in the 2015 general elections in Nigeria are highlighted below:

1. Hands-on training in the use of SCRs was taken for granted by many adhoc staff, and time allocated to training was not adequate to master its use.
2. The inexperience and lack of diligence and attentiveness in the use and application of the device by ad hoc staff occasioned failure in many parts of South-East and South-South Nigeria. Such staff did not remove the cellophane seal on the eyes of the device where fingerprints are read and did not adjust the date and time setting on the device.
3. There was sabotage and compromise by some ad hoc and permanent staff, which resulted in the Commission issuing a memo urging the use of manual accreditation wherever the SCR failed, during the presidential and NASS elections of 28 April 2015.... There is also the problem of storage of the SCRs in a humid climate. There is a need to think creatively about how to do this. If the SCRs are not well preserved and stored, it will amount to a huge cost for INEC....
4. SCRs cannot be used without PVCs. Some people collected PVCs by proxies, some with the intent to impersonate, and others did not protect their PVCs. Hence, the SCRs could not read some cards, leading to complaints lodged with incident forms.
5. PVCs were wrongly packaged and hence sent to the wrong states, but this was only discovered at the point of distribution. Politicians made political capital out of the errors.
6. There was data mismatch, whereby either biometric data or the bio data on the card did not correspond with the true information of the owner of the card.
7. Through negligence, some batteries were not fully charged and ran out fast. (Adeshina 2016:17; INEC Report on the 2015 General Elections, in Abubakar in Denis Kadima (2016).

Beetseh and Akpoo (2015) also note that one notable problem experienced during the 2015 general election was the inability of the Smart Card Reader device to access names of voters starting from Alphabet "A" to "E". Other problems which they said confronted the SCRs usage in the general election were irregular capturing of biometrics from finger tips and inadequate training of INEC staff, which led to poor handling of the SCR device. They further observed that the device malfunctioned in some places due to poor education of the electorate on the use of the Smart Card Readers for elections, especially in rural communities, where most had never seen the Smart Card Readers until the election day, which brought about uncooperative attitude from the electorate, particularly the illiterate.

During the Anambra 2017 Governorship Election, Bada (2017) comments that the Smart Card Reader created challenges for the electoral officials noting that there were Card Reader challenges in various local governments across the state. One of the places he mentioned to have encountered Card Reader failure was Eri Primary School, Otuocha, where Governor Willie Obiano, the All Progressives Grand Alliance (APGA) Governorship candidate went to cast his vote, in which the card reader failed making the Governor to do manual accreditation before casting his vote. Bada (2017) discloses that areas like Njikoka local government area of the state, and some voting centres in Onitsha suffered from similar Card reader glitches.

Most of the above shortcomings of SCRs recurred in the 2018 Ekiti and Osun states governorship elections respectively. For instance, some Smart Card Readers used for the Ekiti governorship election malfunctioned and were unable to authenticate most voters in the state, including the wife of the APC governorship candidate (Atoyebi, Ajaja and Aworinde, 2018). There were also reports of faulty

card reader at Ofafuru Polling Unit 002, Ward Kolapo .card of Prof 'which rejected the voters ,Ekiti-in Ikere 002 the ,OlusolaPDP candidate in the governorship election (Pulse, 2018).

Adepetun (2019) also proclaims that the Card Reader device could not read the PVC of the wife of the then All Progressives Congress governorship candidate, Erelu Bisi, until after the problem was technically rectified. This development made some people suspicious, accusing INEC of deliberately favoring some voters and parties while disenfranchising others through the use of the Card reader.

During the 2018 Osun state governorship election, the Card Reader encountered challenges likened to the Ekiti state experience. Nwogu (2018) reveals that some of the SCRs deployed equally faced the problem of inability to verify and authenticate voters in some polling centres, a constraint Nwogu reported was admitted by the state's Residential Electoral Commissioner, Mr. Olusegun Agbaje, who said that the problem was however later rectified.

When the Smart Card Readers were tested in November 2018 in Kebbi state, 56 out of 3,882 Card Readers failed to capture the people's data in the state; INEC has however said that the Upgraded Card Readers are faster and more robust (Adepetun, 2019). However, analysts like Olurode (2017) assert that the introduction of technology such as SCRs into the conduct of elections has greatly improved electoral processes in Nigeria and in some African countries, making electoral frauds easier to detect unlike before thereby limiting the issue of multiple voting; voting by proxy as well as eliminating ghost names from voters' roll.

Also, in their study, Beetseh and Akpoo (2015) have found out that deployment of technology has enhanced Nigeria's electoral process, whereby the SCR has gradually replaced the manual voter register and that such Smart Card Reader evolution led to great development of electoral systems in countries like the United States of America (USA); hence INEC adopted the SCR technology because of electoral malpractices, which brought about bad governance in the country.

Whereas, Odo (2017) opines that notwithstanding the mixed feelings surrounding the deployment of the Smart Card Reader in the country, its application in the conduct of 2015 presidential election has achieved the rationale for its adoption, which was to lessen electoral frauds and deepen Nigeria's democracy.

Against the backdrop of series of problems confronting the SCRs deployment in the conduct of elections in Nigeria as highlighted above, the incumbent Chairman of INEC, Prof. Mahmood Yakubu, had assured Nigerians of the Commissions' readiness to correct such problems. He said INEC would continue to improve SCR, which he said had become an integral part of Nigeria's electoral process. Prof. Yakubu disclosed that the problem with Card Readers witnessed in past elections were not technical but with the training of the ad-hoc staff (Adepetun, 2019).

Ityokura et al (2019) state that over 11 million voters out of the total number of registered voters would not vote because they did not collect their Permanent Voter's Cards (PVCs). In the report, Prof. Mahmood Yakubu said that 72,775,502 PVCs (representing 86.63 percent) were collected, while 11,228,582 persons (put at 13.37 percent) failed to collect theirs. Briefing stakeholders on another occasion concerning the 2019 General Elections, the INEC Chairman disclosed that about 180,000 SCRs would be deployed, configured to only open for use at 8am on election day, and automatically shut down by 10pm. This, the INEC Chairman was designed to forestall any illegal use of the SCRs before the appointed time of elections (Ajai, 2019).

The 2019 general elections, which President Buhari was later declared by INEC to have won a second term, eventually took place nationwide on February 23 and March 9, 2019 respectively with INEC deploying about180,000 Smart Card Readers throughout the country. The Presidential and National Assembly general elections, which held on the February 23, 2019, witnessed large turnout of voters, was marred by unpleasant incidents in some parts of the country, but peaceful and orderly in most other areas, especially the northern parts, according to reports.

On the issue of Smart Card Readers deployed by INEC in the 2019 Presidential and National assembly elections, Nwachukwu (2019) asserts that the mistakes of INEC in 2019 general elections were similar to the ones the Commission made in 2015 elections. He highlights INEC's errors during the elections in the country to include malfunctioning card readers, bad SCR batteries, late arrival of election materials as well as INEC staff manipulating election materials. He states in the article that postponement of the elections did not solve any perceived issues, but rather aggravated them and increased outbreak of violence in the country.

Garba et al (2019) aver that during the Presidential and National assembly elections, the SCR gadget rejected former President Olusegun Obasanjo's fingerprints in his polling centre after seven attempts before the problem was rectified for him to vote. Also affected, was the former Speaker of House of Representatives, Dimeji Bankole, who had to vote manually due to the SCRs disappointment.

In this vein, the Presidential Candidate of the Young People's Party (YPP), Kingsley Moghalu, berated INEC for the malfunctioning card readers deployed at his Polling Unit in Ward 2 of Nnewi North Local Government area of Anambra states, fearing that the non-functioning card readers would disenfranchise many voters (Guardian, 2019). In another occurrence, (Olatunji (2019) discloses that the gubernatorial candidate of People's Democratic Party, PDP, in Lagos, Jimi Agbaje, expressed doubts on the credibility of the 2019 Presidential and National assembly elections due to the inability of the card reader at Ward A, Polling Unit 004, Apapa, to accredit him and his wife after several attempts, making him to undergo manual accreditation. Jimi Agbaje in Olatunji (2019) remarks that failure of SCR would open room for insinuations and mischief.

Also, about the 2019 Presidential and National assembly elections, the European Union Election Observation Mission to Nigeria in Okere (2019), offers its own assessment, saying voting continued on four occasions even when the smart card readers malfunctioned. The mission states that there were obvious problems in completing result forms, which were not publicly displayed in half the counts observed, thus weakening transparency.

Moreover, Ebiri et al (2019) observe that INEC's application of the SCR gadget in the 2019 Presidential and National assembly elections was a 'catalogue of logistical nightmare', which include but not limited to late arrival of INEC staff and materials at polling venues, inadequate personnel, transportation of some INEC staff and materials with commercial motorcycles, card readers that malfunctioned rampantly or had network problems, leading to difficulty in accreditation and voting in most polling units in Enugu state.

According to the report, Abia, Imo, Kano, Taraba, Bayelsa states et cetera were among the areas that experienced similar hitches during the elections. In Kano state, Ebiri et al (2019) stated that INEC had transportation challenges, which made accreditation and voting to start late, including faulty card readers in some places, which made voters to resort to manual voting. But in Taraba state, apart from late arrival of materials to various polling units, one major problem that confronted INEC was the ad hoc staff's inadequate knowledge of how the smart card readers function, which nearly marred the smooth conduct of the exercise (Ebiri et al, 2019). INEC authorities however assured in the report that they were working tirelessly to correct the logistic problems and improve on subsequent elections.

In a related development, Peter Obi, the Vice-Presidential candidate of PDP, faulted the 2019 Presidential and National Assembly electoral process as clumsy, taking time for someone to get accredited and cast vote. He pointed out that some of the things were not right, including the ink, adding that he was harassed, along with others, by security operatives (Vanguard, 2019). Afterwards in Onitsha, Peter Obi in Ujumadu (2019) says that only twenty percent of about 10 million registered voters were able to vote due to card reader problem and clumsy process, which made it difficult for people to vote. He also points out that while INEC did not allow people to vote manually in the zone, manual voting was accepted in other parts of the country, which was a systematic plan by the electoral body to make the South-East not participate in the electoral process. He also said that he knew something was wrong somewhere when over 400,000 people's PVCs were burnt at INEC's office in Awka.

While using the Smart Card Reader in the 2019 Presidential and National Assembly elections, the issue of harassment and intimidation equally affected some electoral officers, going by analysis. There were reports of some INEC Returning Officers (ROs) allegedly intimidated and forced by some politicians and thugs to announce election results under duress in the politicians favour, even when the card readers ostensibly malfunctioned, This intimidation made the ROs to declare polls in the affected areas inconclusive, only for the ROs to later recant their earlier statements saying they were not forced, rather they had already announced the election results respectively, which stood as earlier announced (Okeoma and Achonu, 2019; The Eagle, 2019; Uzoaru, 2019; Uzoaru and Anyanwu, 2019; Ujumadu, 2019; Premium times, 2019).

The Smart Card Readers were also applied in the Governorship and Houses of Assembly elections, which took place in the country on March 9, 2019. Fabiyi et al (2019) comment that the elections were marred by low turnout of voters, killings, ballot box snatching and militarization of the process etc. Consequent upon the hitches and other issues experienced in the elections, Alex Ogundadegbe, a public opinion analyst, in Olumide and Nwachukwu (2019), proclaims that the 2019 Presidential and National Assembly elections lack credibility from every spectrum as the electoral umpire failed to guarantee free, fair and credible election, suggesting that Nigeria should adopt electronic process of transmitting election results in order to get things right. He opines that the country should not continue using the system of Card Readers and Permanent Voters Cards (PVCs), which kept failing; but should adopt a system where voters are registered online and voting done with voting machine as obtains in other parts of the world (Olumide and Nwachukwu, 2019).

Furthermore, it was observed that a situation where more people voted in areas having rising and constant insurgency attacks than peaceful areas of the country as well as the delay in collation and announcement of results would make the credibility and authenticity of election results doubtful (Olumide and Nwachukwu 2019).

In another forum, a Senior Advocate of Nigeria (SAN), Olisa Agbakoba, in Alagbe (2019), observes that the pattern of election showed that 'ethnicity' played a significant role in the result, saying that both APC and PDP benefited from 'primordial' voting, adding that unless something was done, 2023 elections would follow the pattern of 2019. In his reactions, Mr. Stanley Ozuzu, an attorney based in the United States of America comments in Nkwopara (2019) that Nigeria's electoral process was patently wrong, asking how Nigeria could explain to have registered more than 70 million voters but less than 30 million people voted in the last election. Ozuzu adds that the just concluded 2019 Presidential and National Assembly elections could not be said to have been free, fair and credible.

Nonetheless, as Nigerians trooped out for biometric authentication with SCRs to cast their votes in the 2019 General elections, reports of security agents' intrusions and electoral violations abound in the country. Erunke (2019) reveals that the Centre for Transparency Advocacy, CTA, speaking about the 2019 Presidential and National Assembly elections, had accused military personnel deployed for security to have abandoned their primary responsibilities and displayed open partisanship during the exercise.

Furthermore, there were reports of electoral duty breaches by INEC's electoral officers in the said 2019 General elections. The Chairman of the INEC, Prof. Mahmood Yakubu, was quoted to have said in Ajai (2019) that:

> We have reports of possible dereliction of duty by some electoral officials. They refused to activate or deploy the smart card readers. The failure to fully account for materials for the elections, absconding from duty and a host of other infractions. In Imo state, one of our Electoral Officers had already been handed over to the Police. We will not tolerate violations against, or by our own officials

Regardless of the violence, deaths and other obstacles experienced in some parts of the country during the 2019 general elections, prominent persons and organizations commended the process. Among these personalities was President Muhamadu Buhari, who in ThisDayLive (2019), comments that he was happy that Nigerians on February 23, 2019, decided to exercise their franchise and the process was going on well. According to the write-up, the President, in company of his wife, Aisha, voted at his Polling Unit 003 Kofar Barau III Gidan Niyam, in Daura Local Government Area of Katsina State. President Buhari arrived the Polling Unit in Daura about 8am and completed the process of accreditation and voting within 10 minutes.

Lawal and Gyamfi (2019) disclosed that former President of Nigeria, Olusegun Obasanjo, commended INEC for peaceful conduct of the polls, saying, that the card reader, and the entire process had improved unlike past elections in 2011 and 2015. Yakubu (2019) reports that the former Head of state, General Yakubu Gowon (rtd.), while monitoring the 2019 Presidential and National Assembly elections at Polling Unit 027, Model Secondary School, Maitama, Abuja, commended Nigerians and the Independent National Electoral Commission (INEC) for peaceful and smooth conduct of the elections, adding that the polls were peaceful in all the places he visited in Abuja.

Also, The Economic Community of West African States, ECOWAS, gave INEC and security agencies kudos for their professionalism and dedication during the 2019 Presidential and National assembly elections. The ECOWAS mission said the polls were peaceful and transparent as people voted freely without intimidation, except some observed logistics flaws like smart card reader challenges, shortage of materials and late opening of the election by INEC (Ukwu, 2019; Akeregha, et al, 2019).

IV.   CONCLUSION

A fundamental character of democracy is periodic free, fair and credible election. But, in Nigeria, elections have been problematic since independence and worsened by the experiences of military coup d'état and dictatorships. Elections in Nigeria have been characterized by thuggery, ethnicity, rigging, ballot-box snatching, destruction of election materials, vote-buying, under-age voting, militarization of the electoral process, etc. In a bid to curtail some of these challenges, the Smart Card Reader was introduced.
The aim of this paper was to ascertain the fundamental reason for the introduction of Smart Card Reader in Nigerian Elections, as well as stablish the correlation between the use of Smart Card Reader in elections and the credibility of the election results in Nigeria. Furthermore, this study tried to determine the problems associated with the Smart Card Reader and how they can be resolved. The outcome of the study indicated that widespread electoral malpractices are the fundamental reason for the introduction of Smart Card Reader in Nigerian elections and that there is a significant relationship between the use of Smart Card Reader in elections and the credibility of election results in Nigeria state. Finally, the study also revealed that technological constraints and corruption (collusion of INEC officials and government) are some of the problems associated with the Smart Card Reader.
Against this backdrop, the paper recommends that the government should take necessary steps to make the use of the Smart Card Reader and its enforcement constitutional as it has helped to reduce the hitherto clandestine electoral malpractices among others. Also, government should also embark on necessary measures to tackle the challenges of corruption as it still poses a serious obstacle to enthroning fair and credible elections in Nigeria. Furthermore, INEC should deploy high quality Smart Card Readers in elections in Nigeria as it will aid to curtail cases of Card Reader malfunctions in election as well as make use of adequately and well-trained ICT proficient staff in the use of the Smart Card Readers in the conduct of elections in Nigeria.

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