



# The Use of Biometric Voter Authentication System: Experiences, Issues and Way Forward

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# INTRODUCTION

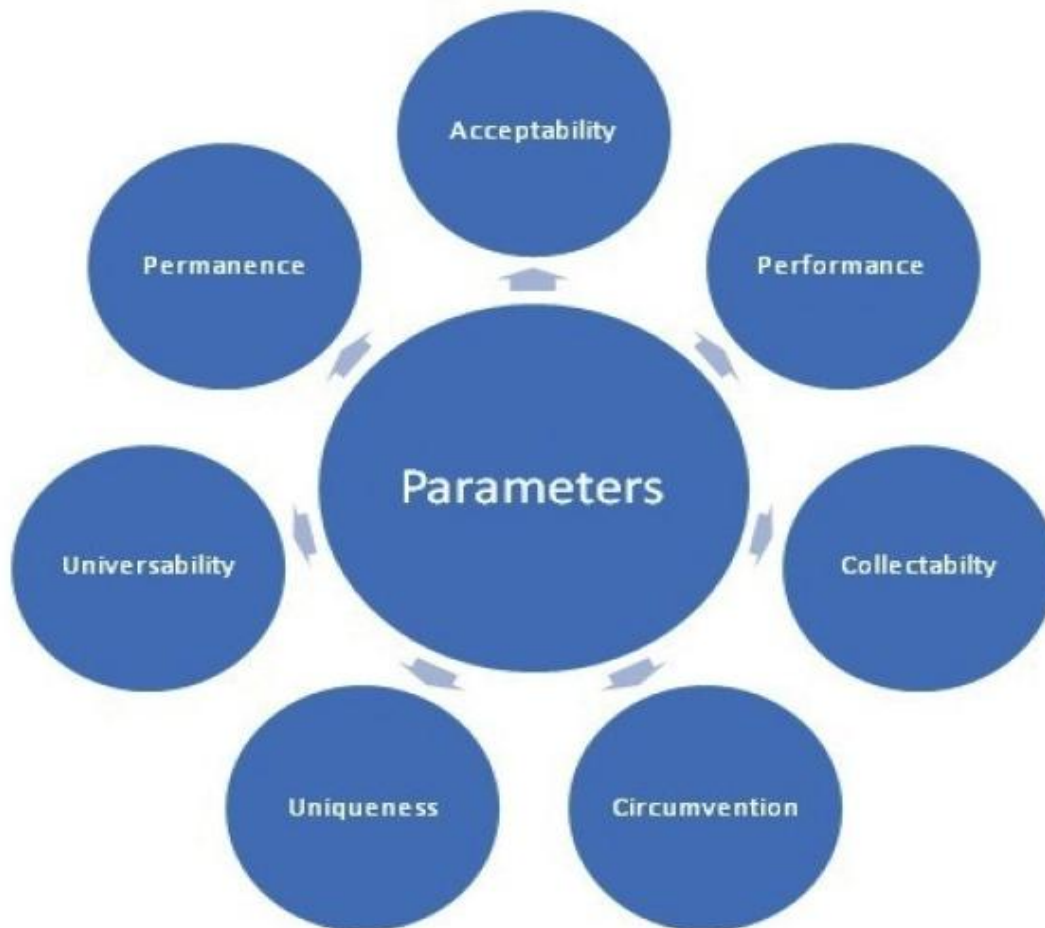
- Biometrics is the process by which a person's unique physical and/or behavioural trait(s) are used to confirm the identity of the person;
- The identifiers are distinctive and measurable characteristics;
  - Physiological characteristics like fingerprint, palm veins, face recognition, DNA, palm print, hand geometry, iris recognition, retina, etc
  - Behavioural characteristics like typing rhythm, gait, voice recognition, signature pattern, etc
- Biometric technology is gaining ground by the day, as issues of identification, verification and authentication are on the increase – all sectors: Drivers' license, international passports, ID cards, access controls, banking, etc
- Market Research (from MarketResearch.com) in June 2012 predicted that the global market for biometric technology will reach \$13.89bn by 2017 – estimated annual growth of 18.7%.

# WHAT IS BIOMETRICS VOTER AUTHENTICATION SYSTEM?

- Biometrics Voter Authentication (BVA) System therefore is the process where a system matches the fingerprint (or any other biometrics) provided by a voter, with a certain already existing biometrics feature;
- It does a 1:1 match;
- It asks the question – “Is this person who he/she says he/she is?”;
- It is different from Biometrics Voter Identification, which answers the question - “Who is this person?” by reading the biometrics feature provided and matching it with existing biometrics data to find out if there is a match – 1:N.

# BIOMETRIC TECHNOLOGY IN NIGERIAN ELECTIONS

Parameters considered:



## ➤ Existing:

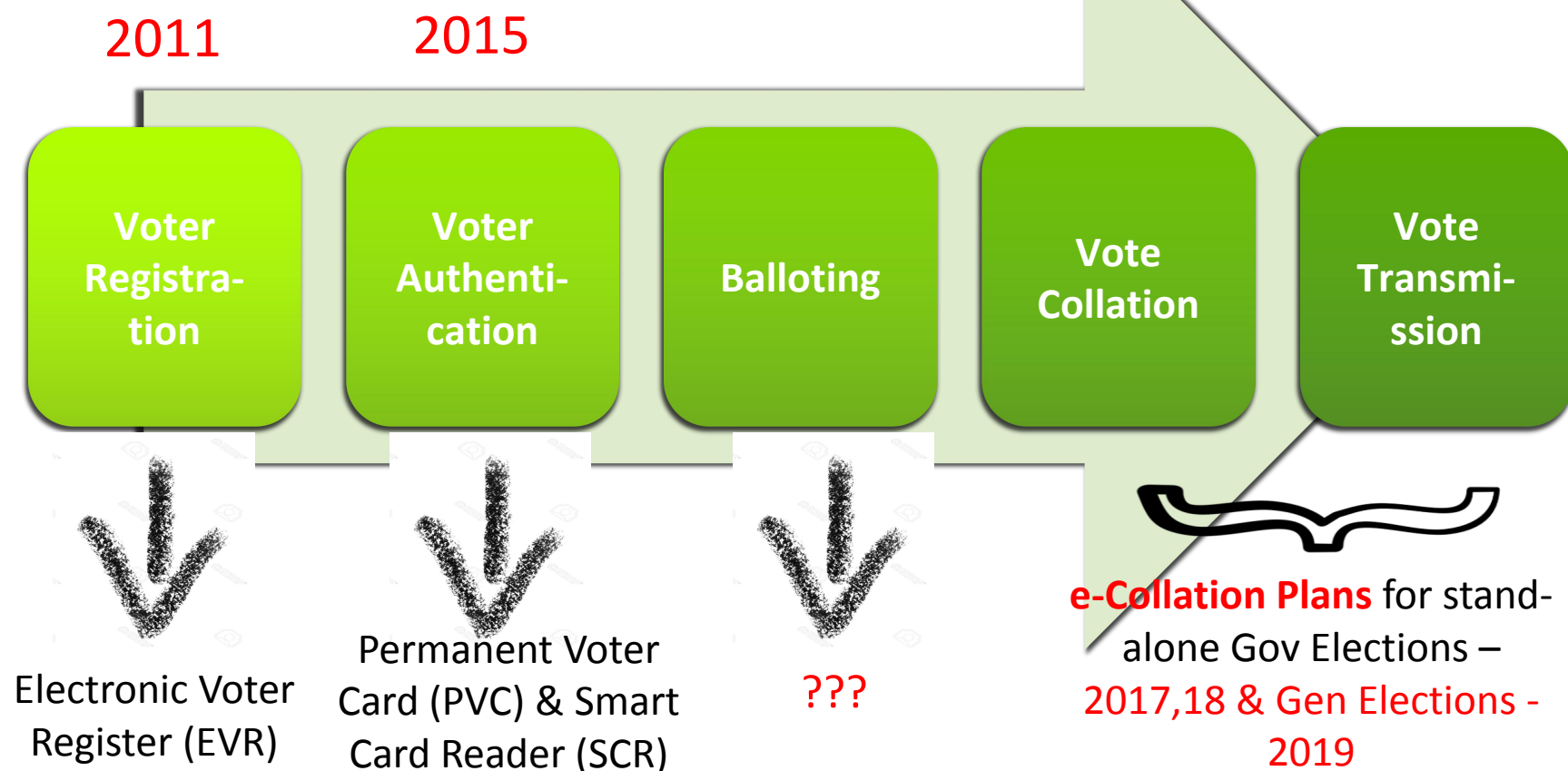
- Nigeria has applied biometric technology in its Voter Registration process
- Smart Card Readers for Voter Authentication on Election Day

## ➤ Future:

- May be not too far - plans are underway to use electronic voting

# ELECTRONIC VOTING SYSTEM

➔ To further deepen the transparency of elections in Nigeria, technology was deployed in some key areas of the electoral process – started in 2011



# BIOMETRIC VOTER REGISTER



- In 2010, Nigeria's Election Management Body (EMB) – INEC deployed 132 Direct Data Capture Machines (DDCMs) to its 120,000 Polling Units to enroll prospective voters;
- Machines captured the biodata, photograph and the ten (10) fingerprints of most registrants – over 74million voters enrolled;
- Register adjudged to be the best register produced in Nigeria, used for two General Elections - 2011 & 2015;
- Register will still be used for the 2019 General Elections, after undergoing updates.

# VOTER AUTHENTICATION

- Voter Authentication is the process of verifying that the person that registered to vote is the same person that is at the polling station to cast his vote;
- This process takes place during the accreditation of voters on election day;
- Voter accreditation has hitherto been manual, exposing the process to human manipulations and fraudulent practices;
- The manual process was improved upon in 2011 with the introduction of accreditation before voting – ensuring that voting commences about the same time in all the Polling Units.
- For the 2015 General Election however, INEC decided to apply biometric technology to optimize the process with the advent of the Permanent Voter Card (PVC) and the Smart Card Reader (SCR).



# SMART CARD READER (SCR)





# VOTER AUTHENTICATION PROCESS

- Accreditation process was broken down into three:
  - **Identification** - physical comparison of the face of the card holder with the image displayed on the SCR when the PVC is read;
  - **Verification** (that the card is original) - being able to read the information on the chip of the PVC presented;
  - **Authentication** - comparison of the fingerprint stored on the card with what was physically presented and scanned by the reader;
- Once a PVC has been read and accredited by the SCR, the Voter Identification Number (VIN) is stored in the reader and it does not allow the accreditation of that VIN on that particular reader any longer.
- The use of the PVC and SCR gave a lot of credibility to the 2015 Electoral Process, as it greatly assisted in ensuring one-man-one-vote; though not without some challenges.

# EXPERIENCES - MOCK VOTER ACCREDITATION EXERCISES

- As the 2015 General Elections approached, the Commission approved a field test of the SCRs which was conducted in two Wards in the FCT;
- The success rate, which is the percentage of persons whose PVCs were successfully accredited by the readers, was 87%; 13% had their PVCs read but failed accreditation;
- Some few months to the Elections, the Commission further decided to carry out Mock accreditation exercises in some selected States in the six-geopolitical zones of the Country;
- The success rate was as high as over 90% in some States, and considerably low in some States.

# EXPERIENCES: 2015 GENERAL ELECTIONS

- Biometric Voter Authentication, using the PVC and SCR was successfully carried during the 2015 General Elections in Nigeria;
- For the Presidential Election, for instance, 80% of voters were accredited using the SCR (over 23 million of the 29 million that voted);
- This could be seen as a huge leap, being a first time attempt at Biometric Voter Authentication;
- The fear of the card readers brought about some changes in the way and manner elections were conducted in Nigeria.



# BIOMETRIC VOTER AUTHENTICATION:

## Technical Issues

- Main issue encountered on the first day of the Elections was the perceived “failure of the readers” – as **authentication** became a major issue;
- This was mainly because of either of the following:
  - Poor training of ad-hoc personnel – little hands-on during training
  - Poor handling of machines by ad-hoc staff – fear of technical equipment
  - Non-properly charged card readers – very minute percentage though
  - Unwillingness to use the card readers by some politicians and persons
  - Sabotage of the process

# BIOMETRIC VOTER AUTHENTICATION:

## Technical Issues...2

- The then President – Dr. Goodluck Jonathan could not have his fingerprint authenticated;
- Elections had to be postponed to the following day in some places where card readers had issues;
- In a bid to properly store the card readers, some staff removed the batteries of the readers days before the election, only for them to be fixed back on election day – this led to such card readers losing their configured settings;
- Inadequate field technical support;
- Dirty fingers of voters – reducing chances of matching

# BIOMETRIC VOTER AUTHENTICATION:

## Cultural/Infrastructure Issues

### ➤ CHANGE FACTOR:

- Nigerians, generally, find it difficult to shift from our comfort zones; the introduction of technology to the electoral process has met with brick walls at some quarters.
- Mobile/data Network coverage in Nigeria still not felt in some rural areas;

# BIOMETRIC VOTER AUTHENTICATION:

## Other Issues

- **The Law** – the need to have the backing of the law to make the output from the Voter Authentication System be tenable in court and determine the outcome of an election;
- Funds! Funds!! Funds!!!
  - Technology is very capital intensive
- The Political Class – despite being involved in the planning stages, they do not support new innovations during elections;



# BIOMETRIC VOTER AUTHENTICATION:

## Observations

- Interesting discoveries from voter authentication database of 2015 General Elections;
- While some States had as high as 79% successful authentication, some States had as low as 16%;
- Preliminary investigations have been conducted, but some further analyses are being considered – comparing the rate of failed authentication to the occupation of voters, areas of abode (urban dwellers seem to have higher percentage of successful accreditation), etc.



# BIOMETRIC VOTER AUTHENTICATION:

## Way Forward

- More training for Poll Officials;
- INEC to carry out forensic check on the data to identify those with biometric issues;
- Proposed plan to carry out a Voter Card revalidation exercise that will request selected voters to come for fingerprint re-capture;
- INEC to collaborate – on a long term basis – with government agencies to recapture/revalidate voters whose biometric data have issues;
- Additional quality checks at point of data enrollment for biometrics data;
- Recent amendments to the Law gives more powers to INEC to enforce the use of SCRs;

# BIOMETRIC VOTER AUTHENTICATION:

## Way Forward ...2

- Software and Operating System (OS) issues being looked into, especially as it relates to retaining configuration settings - having CMOS batteries to store BIOS settings to be an improvement on new SCRs to be acquired;
- Creation of unique identifications for each of the SCRs, and permanent linking of each SCR to a PU – helps with accountability;
- Focus on places that have high incidences of failed authentication to investigate root causes and solve peculiar issues.

# CONCLUSION

- A lot of investments have gone into having a Biometric Voter Authentication System;
- A lot of stakeholders' engagement is already being carried out for further buy-in; as Nigeria prepares for the 2019 General Elections;
- The success of the 2015 General Elections cannot be well sung without talking about the SCR and Biometric Voter Authentication - Nigeria is ready to consolidate on this;
- The issues and challenges will be well focused on, to have a better outing in 2019 and beyond.

*Thank you for your  
attention*