Citizen e-ID:

Innovative Perspectives on National Identity Management

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Outline

A -The Problem: The need for a National Identity Management System

B- NIMC: The National Identity Management Commission

C-The Solution: The National Identity Management System (NIMS)

D. Value Proposition: Enable secure digital ID across several systems

E. The Solution: Combines modern technologies and open standards on one smart eID card

F. Conclusion

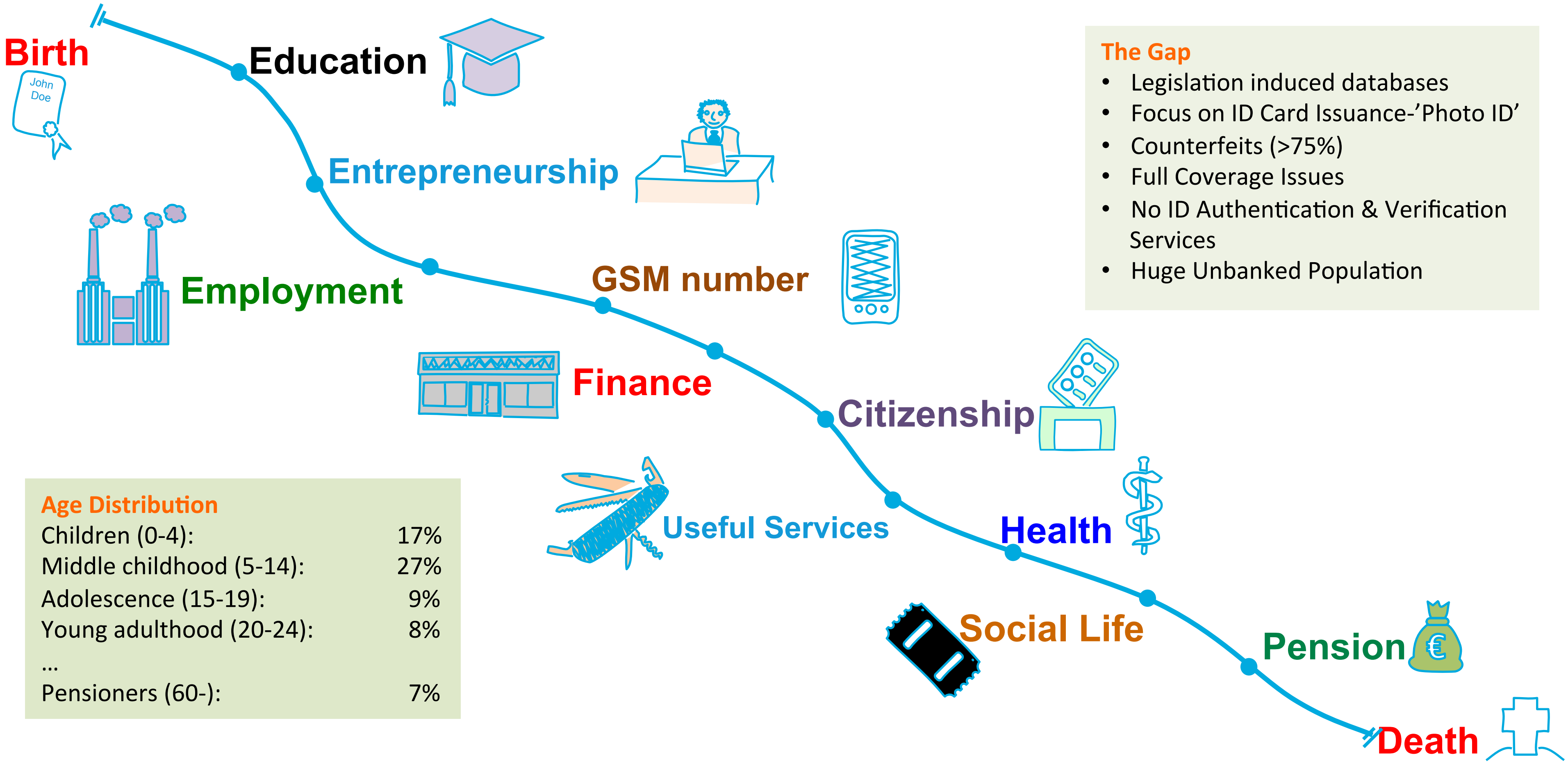
Federal Republic of Nigeria

- Nigeria is located in West Africa and shares land borders with the Republic of Benin, Chad, Cameroon and Niger;

- Has 168 million inhabitants, comprises of 36 States & a Federal Capital Territory, Abuja;

- There are over 250 ethnic groups in Nigeria of which the three largest ethnic groups are the Hausa/Fulani, Igbo and Yoruba

Nigeria’s need for trusted Identity System



The Gap

- Legislation induced databases
- Focus on ID Card Issuance-’Photo ID’
- Counterfeits (>75%)
- Full Coverage Issues
- No ID Authentication & Verification Services
- Huge Unbanked Population

Age Distribution

Children (0-4):	17%
Middle childhood (5-14):	27%
Adolescence (15-19):	9%
Young adulthood (20-24):	8%
…	
Pensioners (60-):	7%

NIMC: The legal frame work

It has the mandate to establish and maintain A Unique National Identity Database in Nigeria

Register persons covered by the Act, assign a Unique National Identification Number (NIN)

Established by the NIMC Act No. 23 of 2007. (Sec. 1,2,5,14 & 18)

Issue General Multi-Purpose Cards (GMPC)
Create and Manage PIDVS

Harmonize and integrate existing identification databases in Nigeria

The NIMC Mandate in Perspective

Key NIMC Mandate according to establishment Act No. 23 of 2007:

The establishment of National Identity Management Commission (NIMC)	**Effective take over by the Commission of the assets and liabilities of the former Department for National Civil Registration**	**Establish, operate and manage the National Identity Management System (NIMS)**

NIMS Project Milestones

Key NIMS milestones include:

Standardized Data Capture/ Enrolment System deployment for data capture in compliance with ISO, ICAO, IEEE etc

National Identification Number (NIN) System which has three other subsystems:

- National Identity Database (NIDB)
- Automated Biometric Identification System (ABIS)
- Network connectivity, disaster recovery/business continuity facility

National Identity Card Issuance System - Procurement, Personalization, Issuance, Management of Multi-application card

Identity Authentication and Verification Infrastructure - 1:N, 1:1, web based service or CADs

Harmonization and Integration of identity related database in government agencies

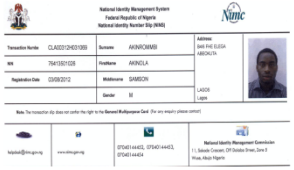
The Solution …

National Identity Management System (NIMS)

1. Data Capture
2. The National Identity Database
3. The National Identification Number (NIN)
4. The National Identity (smart) Card
5. Person Identity Authentication and Verification Services
6. Harmonization & Integration of Identity Databases

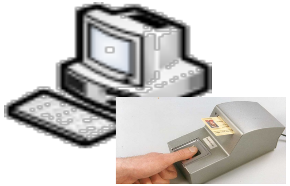
Data Capture

National Identity Database



NIN Generation & Issuance

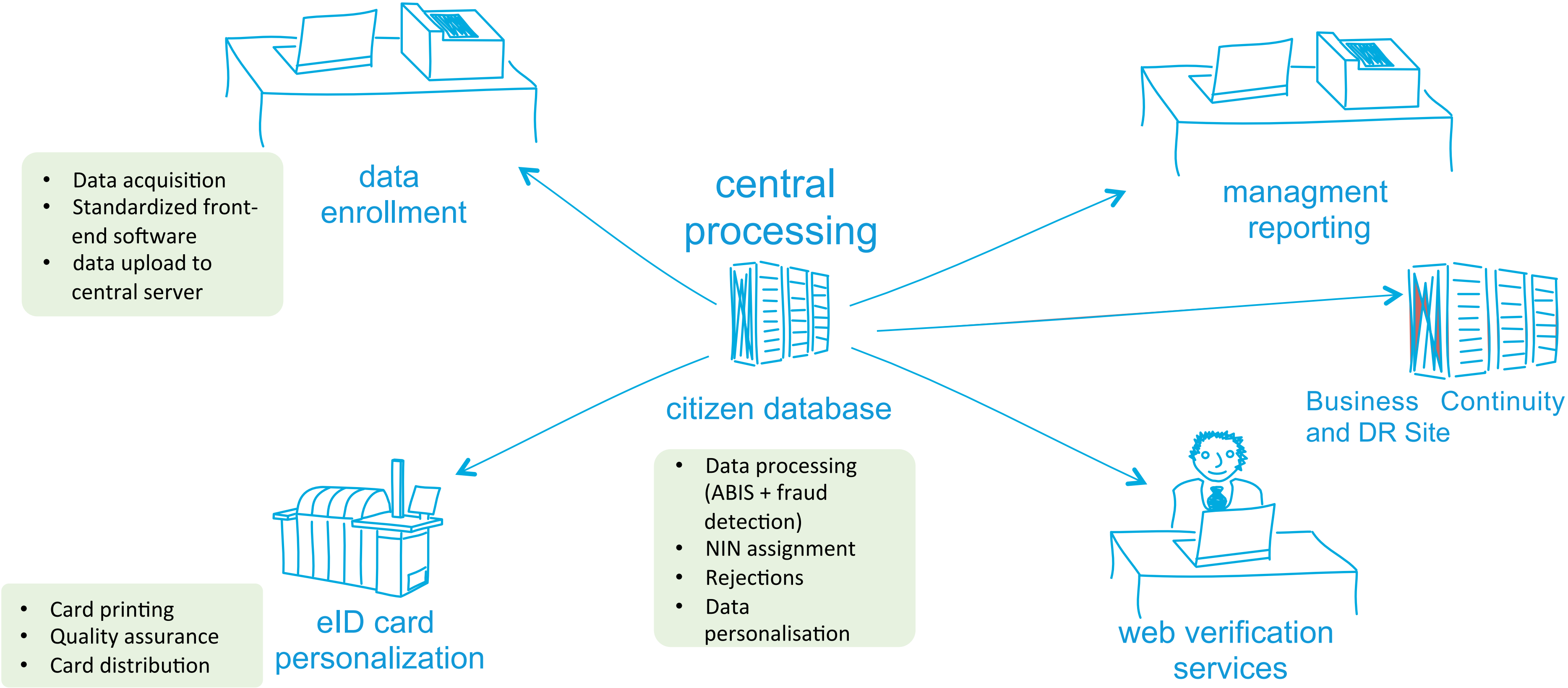
eID (smart) Card



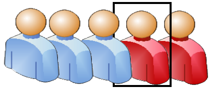
Authentication and Verification

Harmonization/Integration

NIMS - System Overview

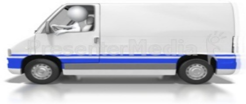


Building a Unique National Identity Database



Trained Personnel

Registration Centers :



Mobile Enrolment Centres

28479308172

Generation of NIN
(De-duplication Sub-System)

Data Centers (Primary and Disaster)

Core Network Sites :

Access Network Sites :

Satellite Terminals :

Servers and Computers

Nation-wide Enrolment for NIN

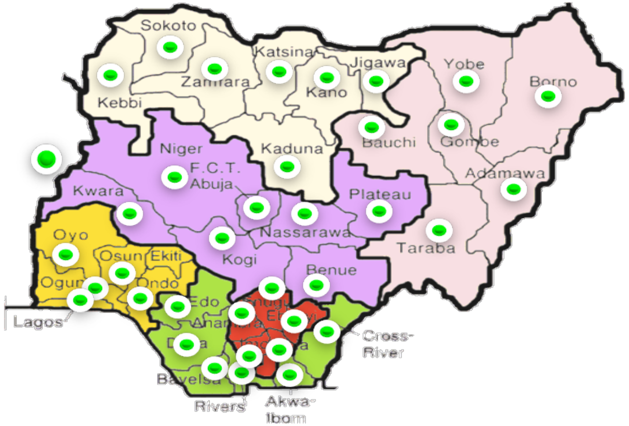
NIMC is currently enrolling & issuing NIN in all 36 states and the FCT…1st Step to National Financial Inclusion

Pre-enrolment

Enrolment Centers

Mobile units

Mobile buses



Deployed 2,000 systems to over 304 locations nation-wide,
Target is 13,000 systems

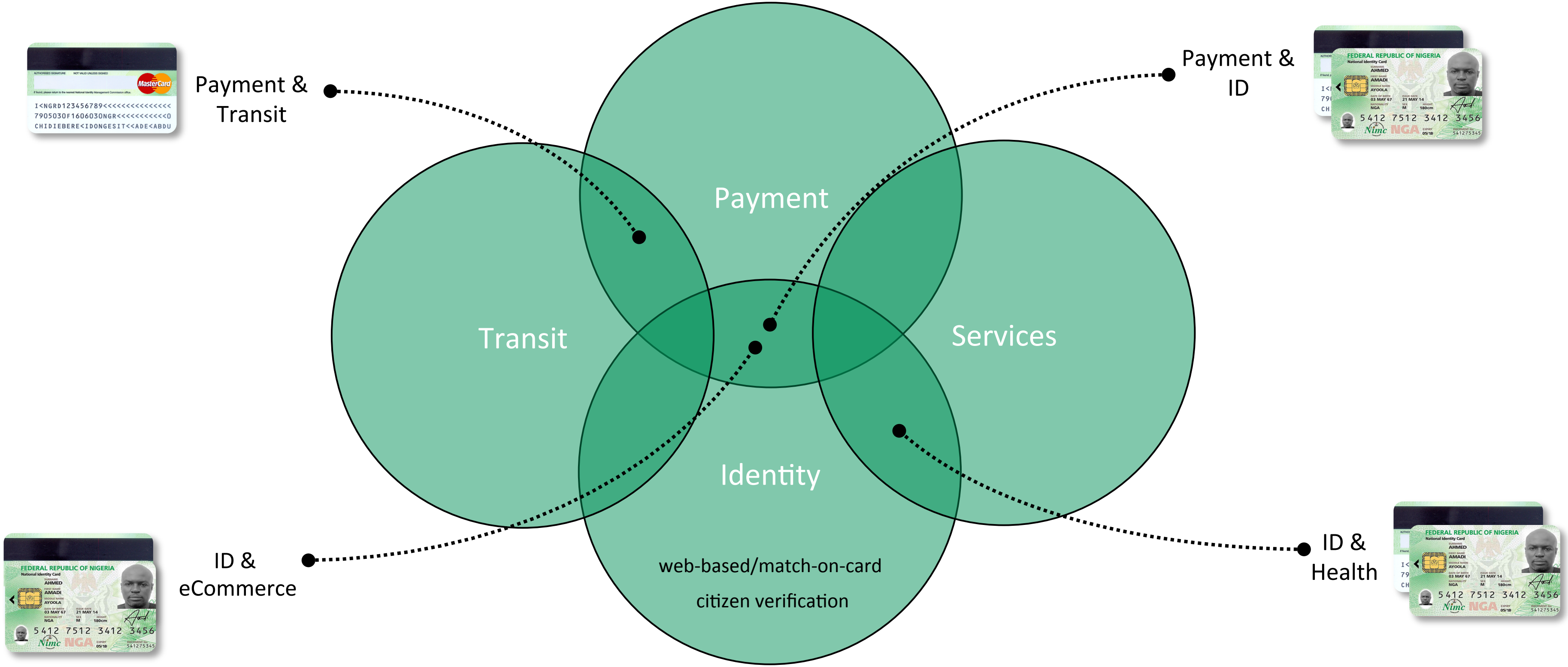
Developed secure enrolment software – by local firms

Over 2,000 trained enrolment staff & Supervisors- Target is 15,000

100,000 Weekly Enrolments

Co-location: MDAs, Special Centres

The NIMS Value Proposition



Enable a secure digital ID platform for Authentication and Verification Through the use of a Public Key Infrastructure

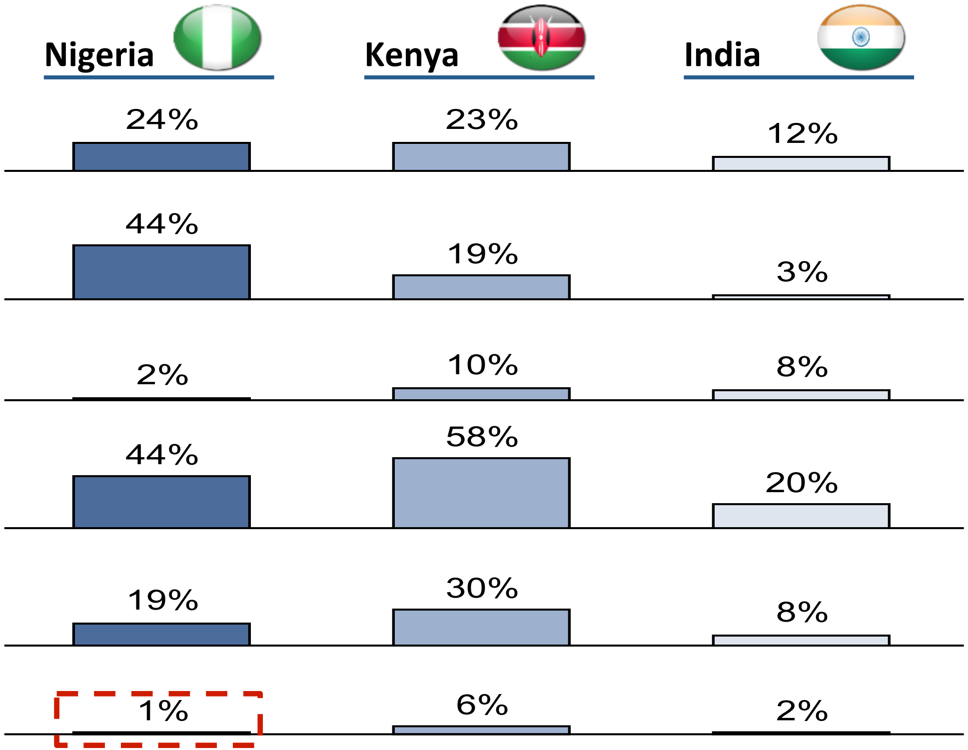
National eID Card enrolment will be pivotal in various ways

- Establishment of reliable, secure National Database can help alleviate security concerns
- Provision of infrastructure for verification and confirmation of identity imperative
- Nigerians benefit by using National Identification Number – **NIN** as a comprehensively applicable proof of **ID**
- Help financial inclusion of the unbanked/under banked in Nigeria through its payment functionality
- Multi purpose prepaid card that can be used for retail payments

Formal V Informal financial services/access

Key Financial Inclusion Indicators (2012)

- Saved at financial institution in the past year (% age 15+)
- Saved using a savings club in the past year (% age 15+)
- Loan from a financial institution in the past year(% age 15+)
- Loans from family or friends in the past year (%age 15+)
- Debit card (%age 15+)
- Credit card (%age 15+)



Source: World Bank data

National e-ID Card as Financial Inclusion Enabler

- According to a 2012 EFInA* study, only **28.6 Million** Nigerians from a total adult population of 87.9 Million are banked. Other formal institutions serve an additional **9.2 Million Nigerians;**
- Consequently, **50.1 Million** Nigerians are not being served by the formal financial sector and **34.9 Million** Nigeria are entirely unbanked;
- All Nigerian National Identity Cards will be issued with **Prepaid** functionality (the initial 13 Million will issued with MasterCard Prepaid functionality):

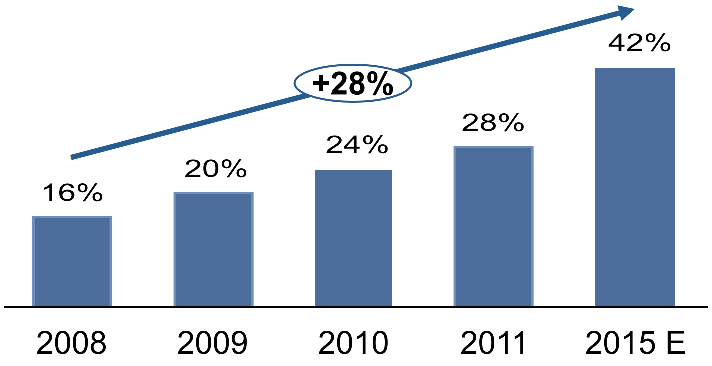
A Prepaid card = Prepaid Account = Bank Account

- **>100 Million National ID Cards is a veritable tool for Financial Inclusion.**

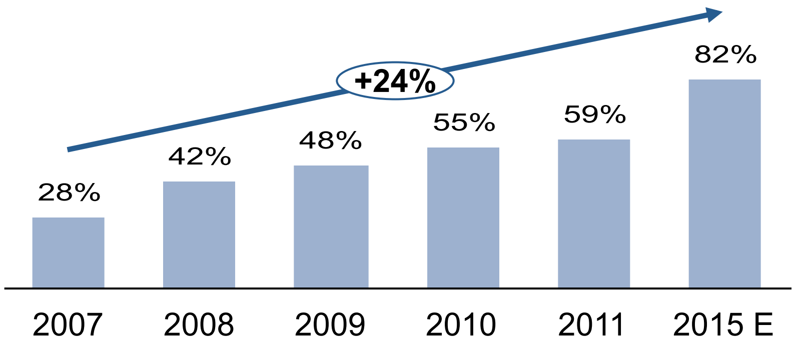
* http://www.efina.org.ng

Internet/mobile penetration as key enablers for eID Card adoption

Internet Penetration in Nigeria



Mobile Subscriber Penetration in Nigeria



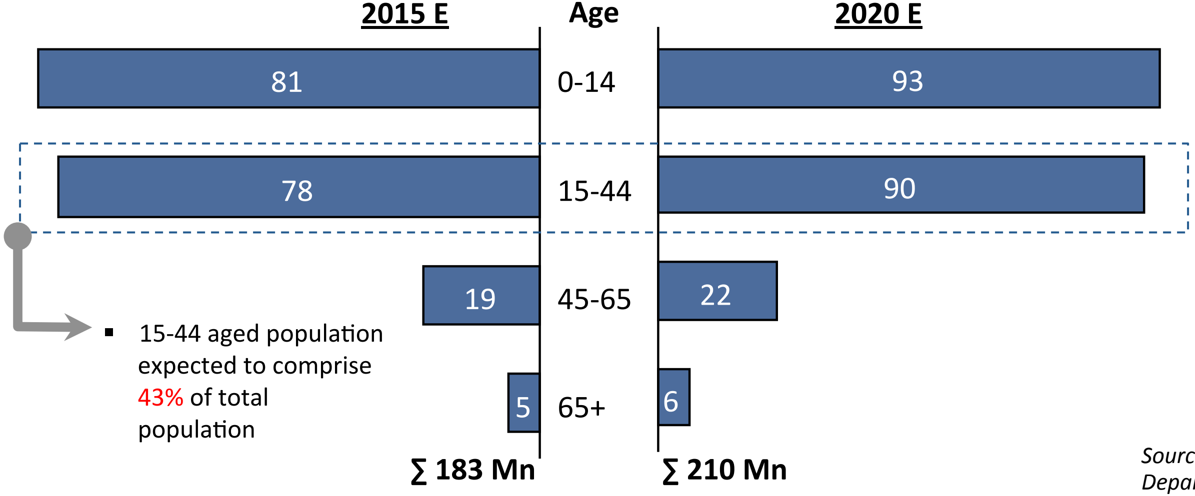
High YoY growth rates of both Internet and Mobile penetration

Source: World Bank data

Project Background

~45% of population expected to remain in 15-44 age group: possible champions of e-ID use

Nigeria's Population by Age (Mn)



- 15-44 aged population expected to comprise 43% of total population

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat

Nigeria's population is ~174 Million (as of 2013)

Population growth rate is expected to be ~3% YoY

Other Factors Fuelling the Need for e-ID

1. Telecoms Sector
Rapid Growth in Telecoms industry.

2. Insecurity
New threats in kidnapping, Terrorism, robbery and bombings!

3. Poor Roads
Reducing inclination to travel long distances for services.

4. Mobility
Shifts in more movements towards urban settlements.

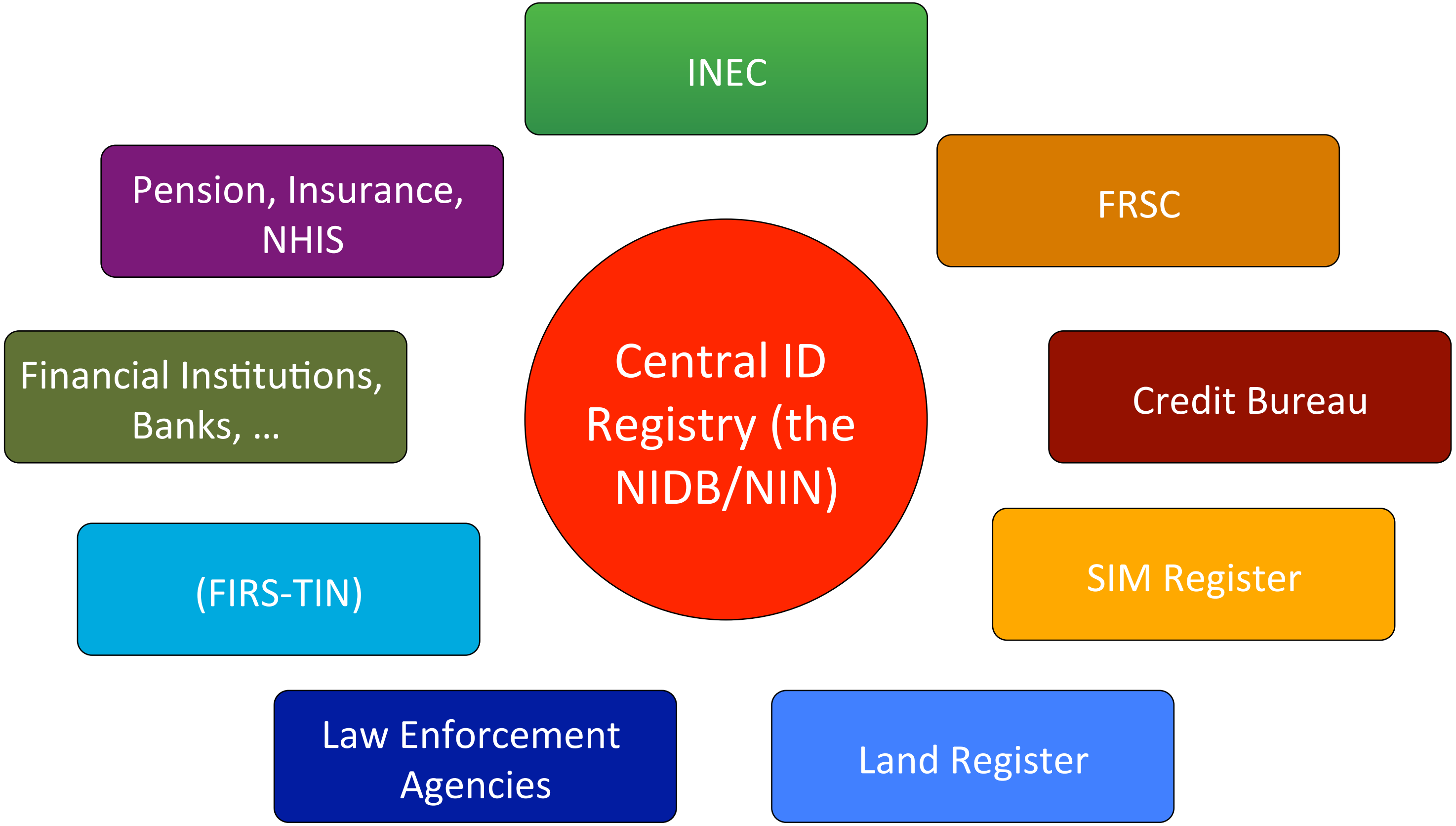
5. Economy
Recent policy shifts towards cashless economy (KYC) and Financial Inclusion

6. Governance
High level cabinet position focusing on ICT + Infrastructure

National ID and Cashless Economy

Government	Commercial	Consumer
• Public Sector Salary • Pension • Social Benefits • Agric Subsidies	• Corporate Salary • Dividend payments	• Cash withdrawal • Micro-Loans • Cash-in, Cash-out • International Remittance • E-Commerce • Merchant payment • M-Commerce

NIMS and the Harmonization/Integration mandate (NIN)

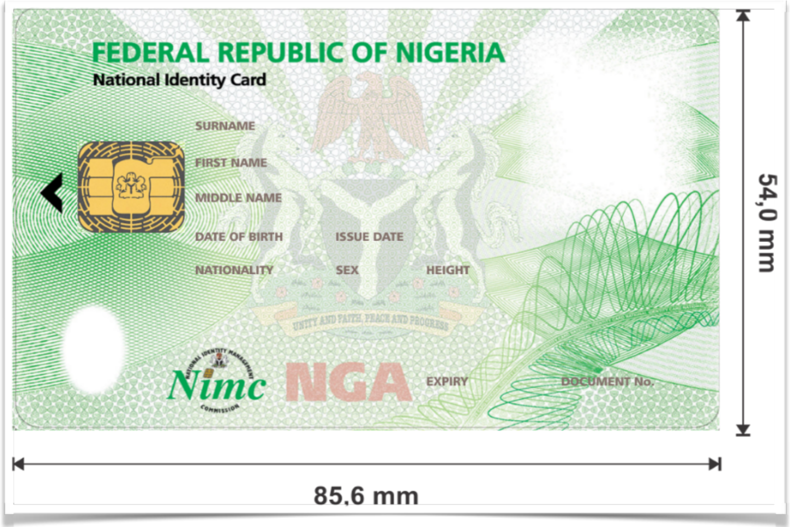


The NIMS e-ID Card

- …the future simplified: …Assured Identity…Global Access…

NIMS e-ID CARD

- Visionary -the future in mind;
- Focused on 'Strong local content';
- Great care and attention;
- NIMC's IP;
- In sync with Global Thinking on drivers of **'Financial Inclusion' :- *'e-ID : Payment'* nexus;**
- 'Transformational' impact!



The National e-ID Card : Your identity database and payment Card in your pocket.

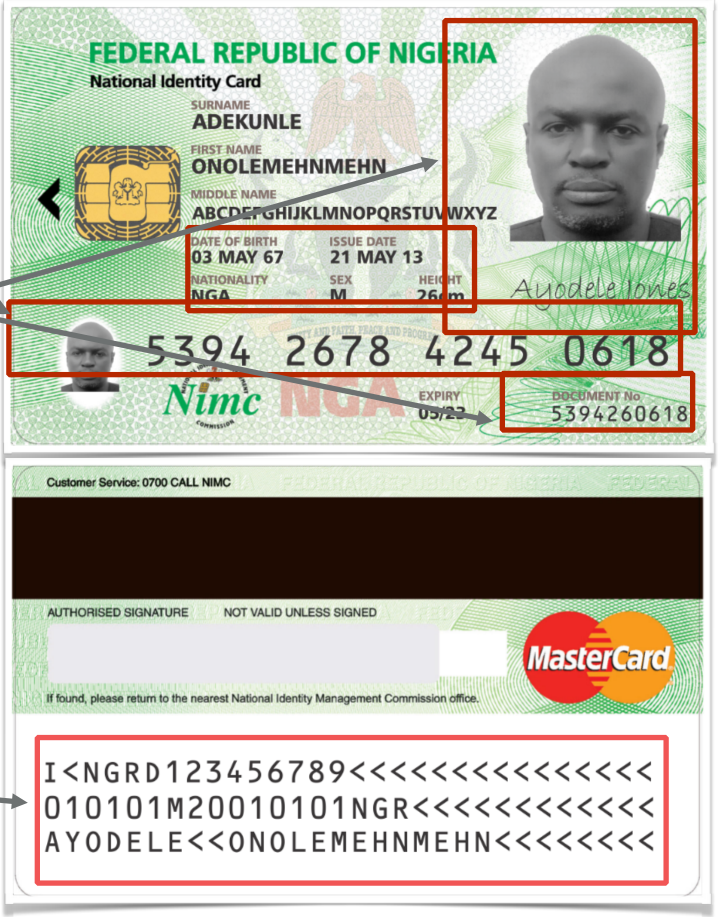
eID Nigeria: card overview

The National Identity Card - Your identity database and payment card in your pocket.

NIMS e-ID Card

Sample Personalized Card

- **Unique EMV PAN Number**
- **Unique Document Number**
- **Standard eID Details**
- **ICAO Features**
  - **Photo**
  - **Birth date**
  - **Issue Date**
- **ICAO MRZ Lines**



Unique Chip Design, a Deliberate Security Effort

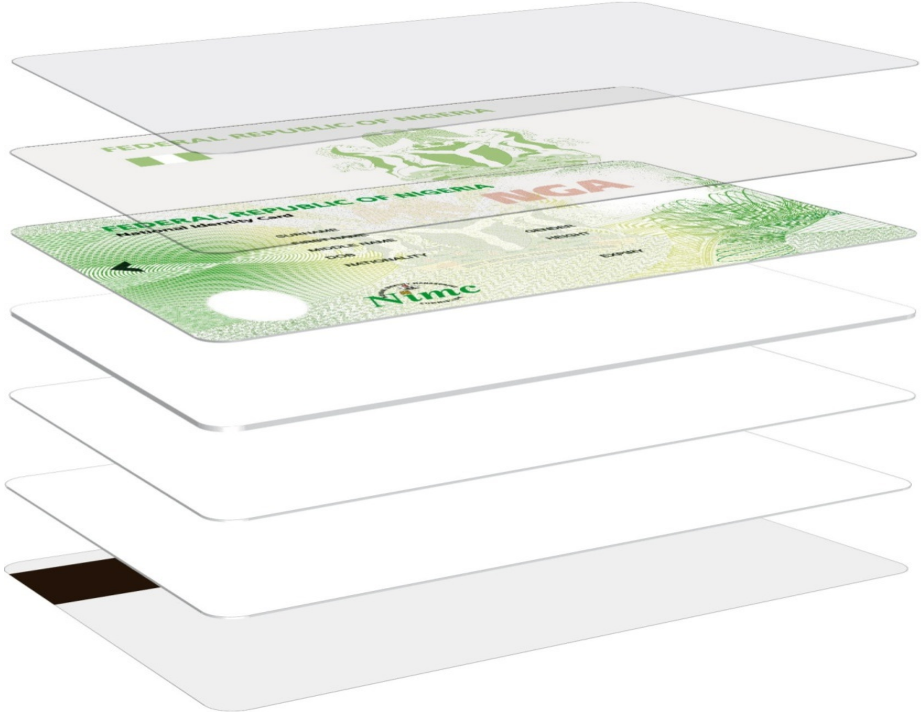
13 applets, including:

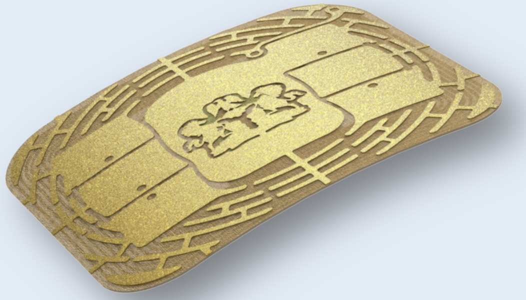
- **e-ID**
- **e-PKI**
- **M-o-C (Match on Card)**
- **EMV (Payment)**
- **ICAO (Travel)**

ISO Norms compliance : ISO 7816-1, ISO 7816-2, ISO 7816-3, ISO 7816-10 and ISO 7816-12.

National eID Card Body Construction and Chip Design

Up to Seven Layered Card Body





Personalized smart card module dedicated to contact interface use and compliant with Dual Interface or Hybrid card

National eID Card Chip Features

All 13 Applets

EEPROM

Personal data | Fingerprints | Keys | Certificates | Additional data

ROM

eID | ePKI | MoC | Payment | Driving License | ICAO | Transport

Health | Voting | Pension | Insurance | Tax | SIM | Custom

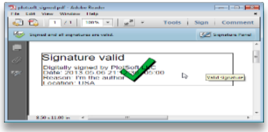
Phase 1 (First Five) Applets

Identity Information (eID)

Payment (EMV)

Travel (ICAO)

Verification (MoC)



Security (PKI)

NIMS eID PKI combines two worlds

Digital Certificates

Document Authenticity and Identity Assurance

- ICAO application
- eID read-out
- Update citizen data
- Post issuance

Strong Authentication and Digital Signature

- Web logon / access
- Online banking
- Online transactions
- Digital signing of document

Biometric Modalities

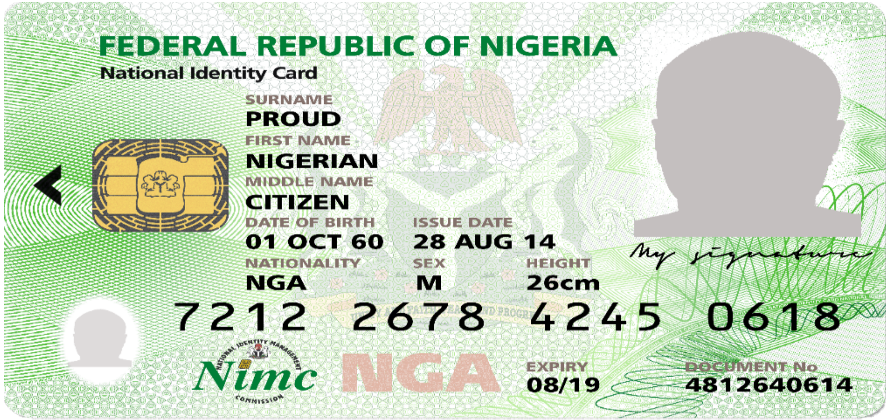
The eID project has adopted 3 modalities

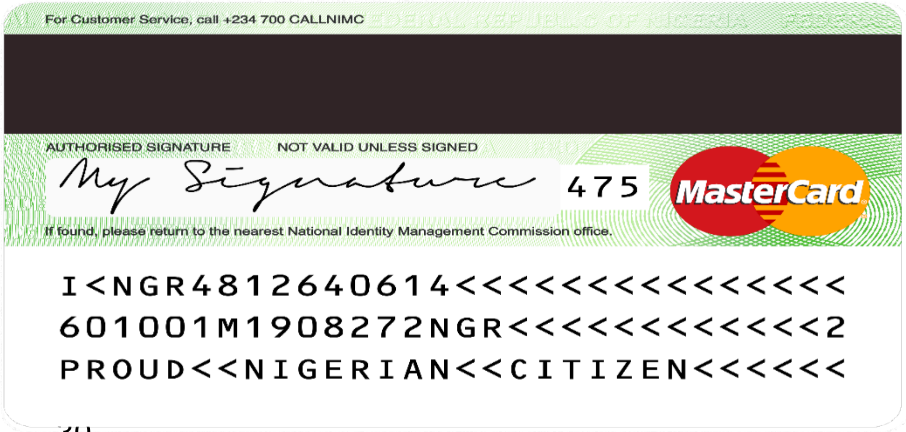
Facial recognition
With ICAO compliant capture

Fingerprint match-on-card
Capturing 10 Fingerprints, de-duplicated, stored in standard template for adults (i.e. age = 16 and above)

Iris recognition
Development/ implementation ongoing

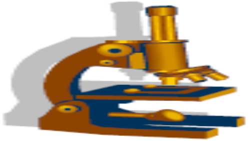
National eID Card Levels of Security





Level 1:
Overt features can be verified by the naked eye

Level 2:
Covert features can require simple tools like magnifying glasses, UV lamps, etc.



Level 3:
Security features require special sophisticated tools e.g. special scanners and software

Card Objectives

Key Features of the Smart Card

A reloadable repaid EMV card

Globally interoperable smart cards

Single chip with multiple functionality (Biometric, EMV , Crypto-processing, PKI, Multiple Applets)

Proposed Load/ Reload channel(s) – POS, Banks, Merchant Locations, Web Portal, Mobile Wallet

Supported Transactions (Cash Withdrawals, POS Purchase, Bill Payment, P2P Transfer, POS Cash Advance, eCommerce, mCommerce

Biometric enabled activation & PIN selection

Card Objectives

A highly secure Smart Card

Confidentiality	Ability to secure sessions with symmetric & asymmetric RSAs
Non-repudiation	Users can issue digital signatures based on the card
Integrity	Each card bearer has X.509 certificate with signature verification enabled
Public Key Infrastructure	Anchored on a national PKI – enabling real time trust verification
Biometrics	Card used for Match on Card and biometrics based verification as a trusted means of person identity verification

- ✓ ISO 27001 compliant on information security
- ✓ MasterCard GVCP Certification on card production facilities – in view
- ✓ ISO/IEC 7816 compliant on smartcard applications
- ✓ ISO 9303 compliant on chip manufacturing
- ✓ ICAO 9303 compliant on machine readable travel documents

Project Status: Card Players

BANKS – Issuer
- BIN ownership
- Holds funds in a pooled account
- Oversees regulatory compliance and bears KYC/ AML risks
- Receives and disburses settlement funds for network items
- Transaction support (routed from NIMC)

Owner
- Owner of the Program
- Introduces the product to the citizens

BANKS – Distributor
- Card distribution
- Channel management
- Activation
- Reload
- Marketing & communication

Programme Manager
- General contractor, managing vendors for sponsors
- Holder of Biometric Data
- Regulatory & compliance support
- Programme design, setup & management
- Provision of sales system
- Card production & inventory management
- Customer service – web, phone

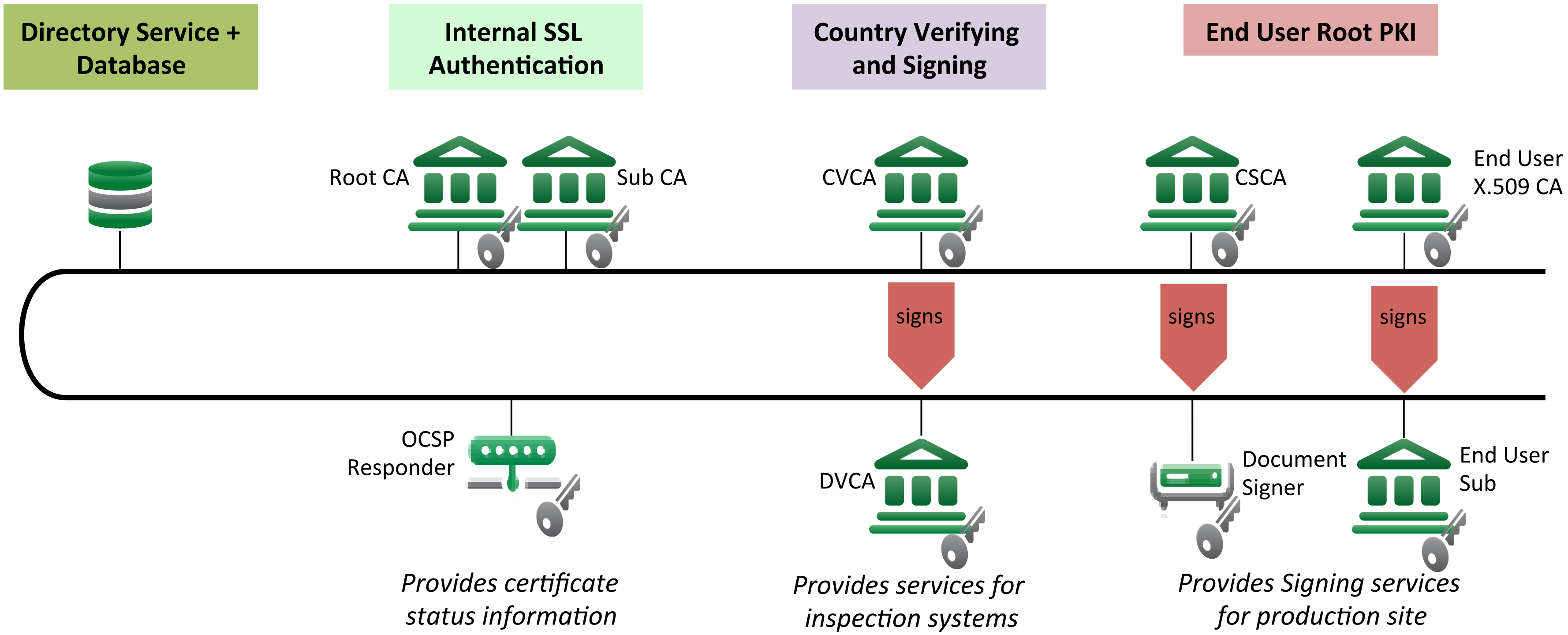
PAYMENT PROCESSOR – Processor
- Payment file generation
- Card processing – performs authorization, clearing & generates period MISes
- Provides platform for customer service functions (IVR, statements, etc.)
- Risk Management
- Provides Value Added Services

Bureau
OneSecureCard Limited

- Card personalization

Network
- Switch/ settle transactions among members
- Set rules, including processing, interchange, exception processing, etc.
- Define products and manage brand
- Marketing & communication

NIMC PKI System Overview



NIMS eID PKI - Technical overview

Certification Practice Statement

CA type / Structure / Function

End User Country Signing Certificate Policy

End User PKI

End User Sub CA
End User Root CA

Card Holders

Country Signing PKI

CSCA

document signers
document security object

Country Verifying Certificate Policy

Country Verifying PKI

CVCA
DVCA

inspection systems

SSL+Authentication Certificate Policy

SSL+ Authentication PKI

SSL+ Authentication Sub CA
SSL+ Authentication Root CA

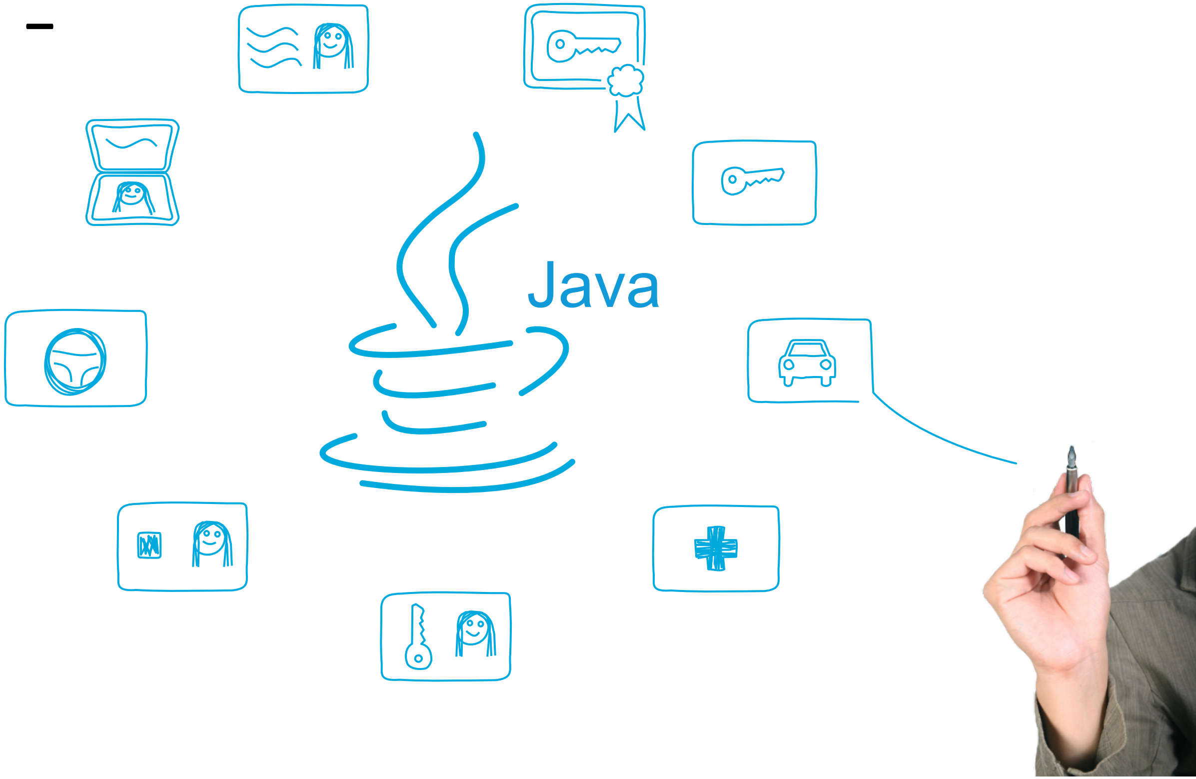
internal users
SSL

eID Use of Biometrics

- Match on Card (MoC): Online and Offline verification of citizens and legal residence
- Terminal Authentication: Fingerprint authentication before service enhanced with the Nigerian ePKI solution
- Authentication and Verification Services (AVCH): Combination of Biometric modalities for Banks KYC, Security Agencies and other 14 Stakeholder agencies

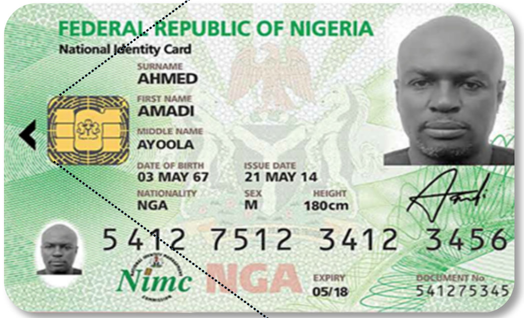
NIMS eID Card Applications

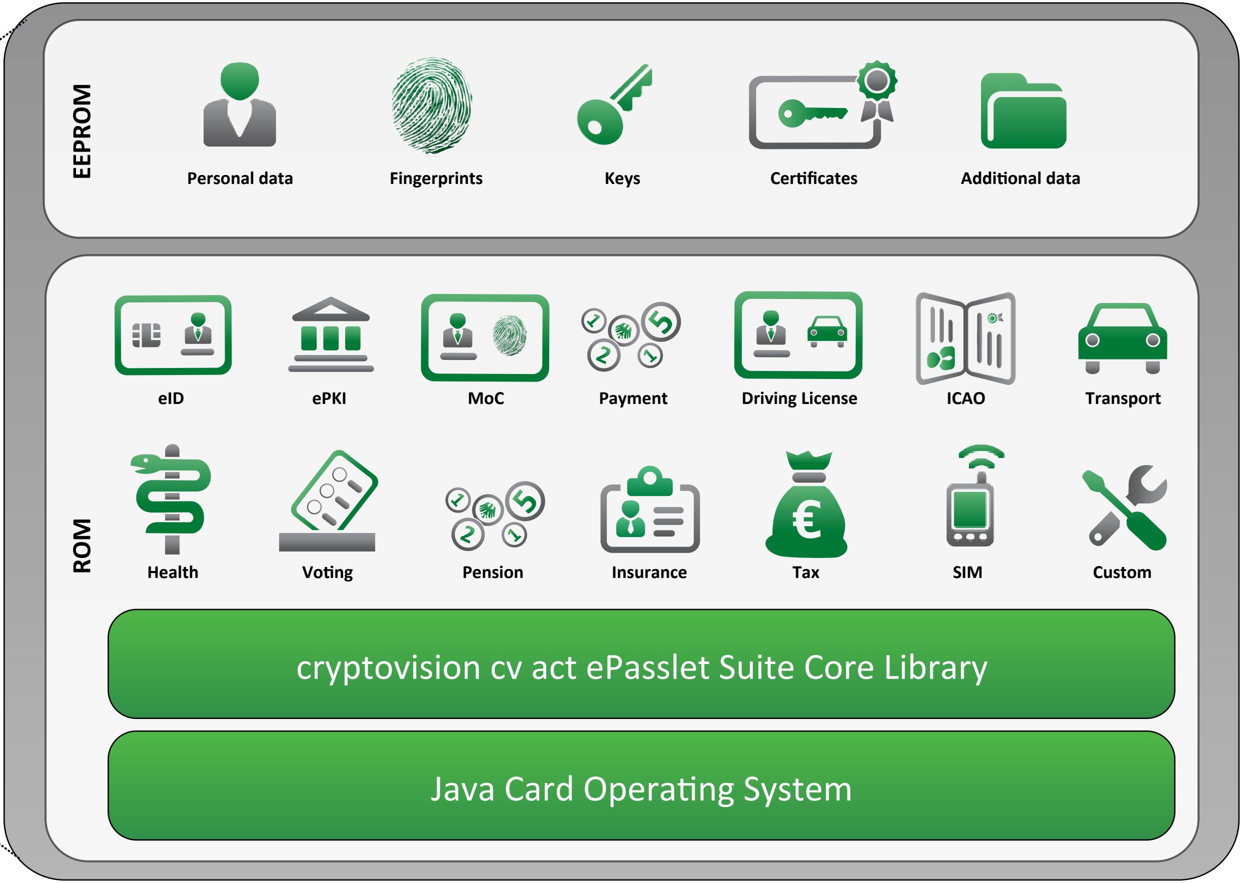
Chosing NXP JCOP and cryptovision ePasslet Suite – an open solution



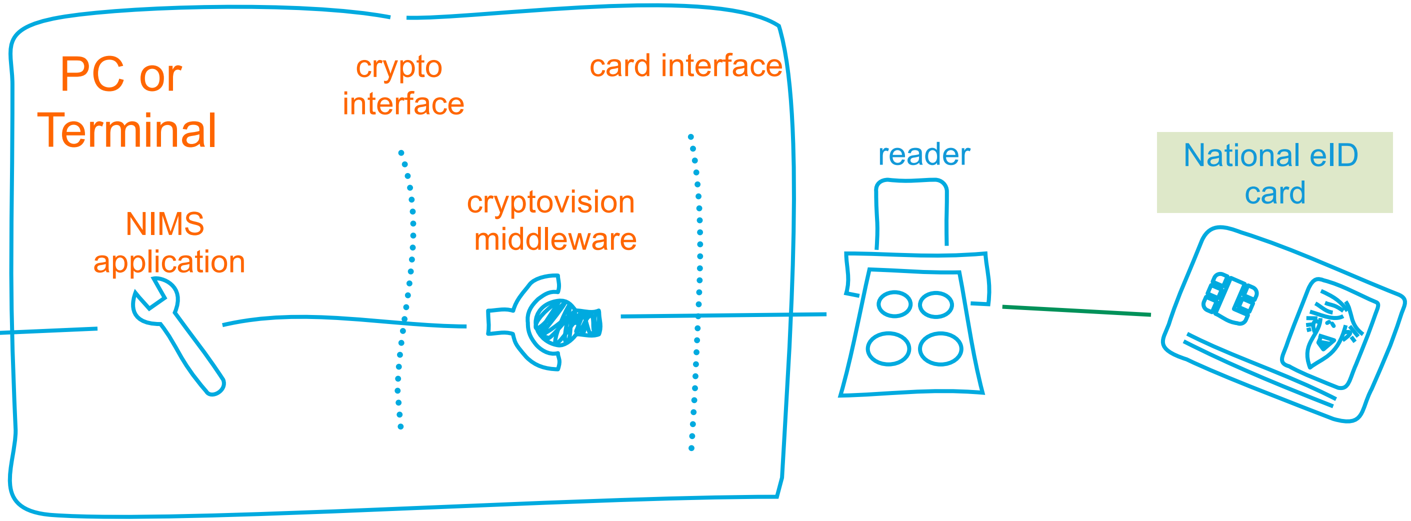
An eID card application framework should not depend on proprietary technology. This is only possible with Java Card

eID Nigeria: Card Application Framework





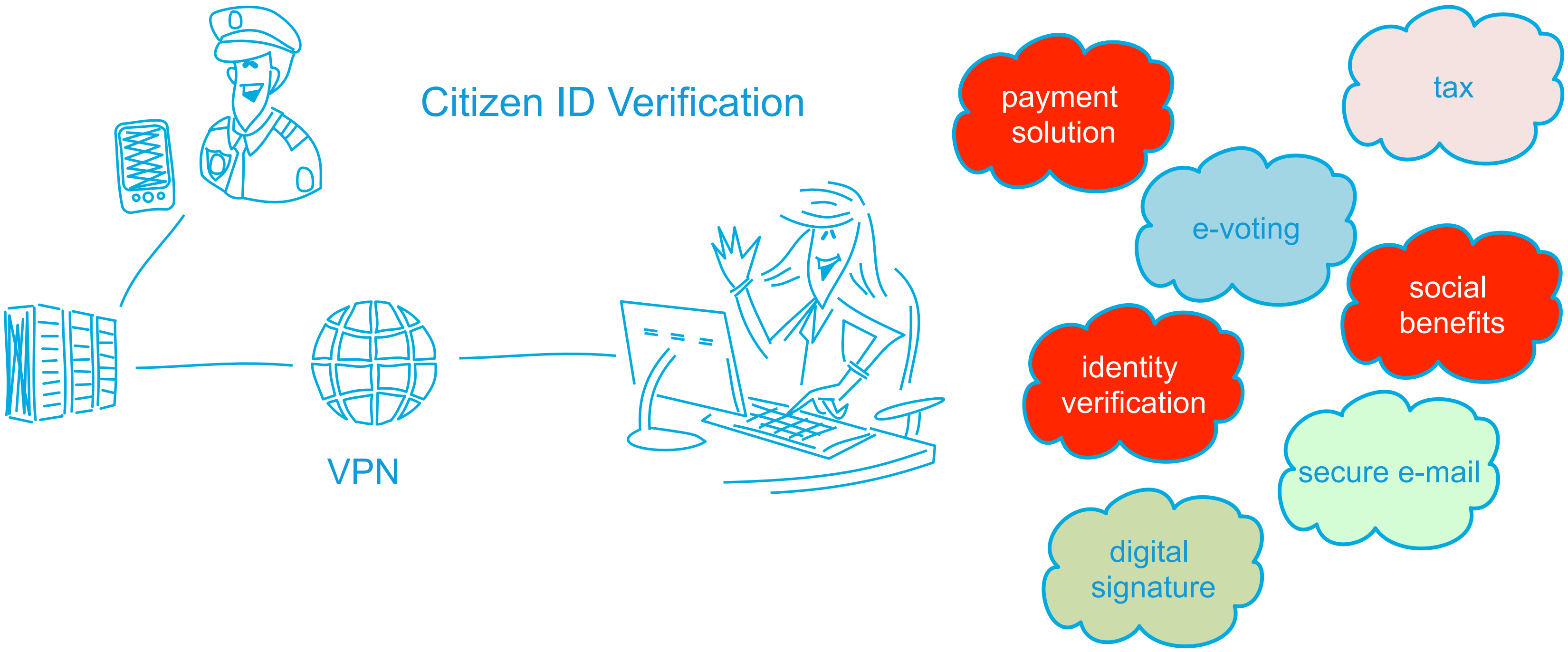
NIMS eID Card Middleware



Operating Systems

Mac OS

Online Verification - You and your National eID



Benefits of the NIN to the Nation

Reduction in cost of governance

Facilitation of common identity needs of the government and the private sector

Linking of identity and payment applications

Enhancement of government service delivery

Preservation of individual identity and privacy

Enhancement of security of the Nigerian public

Reduced fraud

Potential for revenue generation for the Federal Government and private sector


Identity
Matters


Thank you!