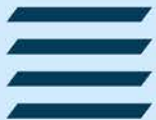




The Federal Reserve Bank of Boston's

# 2017 Cybersecurity Conference



Federal Reserve  
Bank of Boston™



# CYBERSECURITY: The Nigerian Financial Services Industry



The Federal Reserve Bank of Boston's  
**2017 Cybersecurity Conference**



# Nigeria at a glance: Geography



**10x** the size of  
Nigeria in Sq Km



**2x** the size of  
California

**36**

states

**Lagos**

Commercial Capital

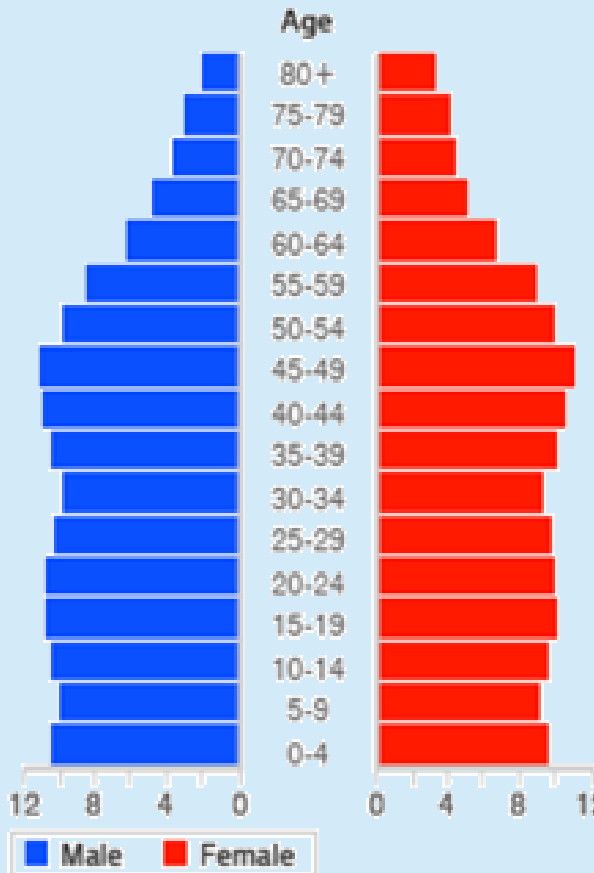
**Abuja**

Federal Capital

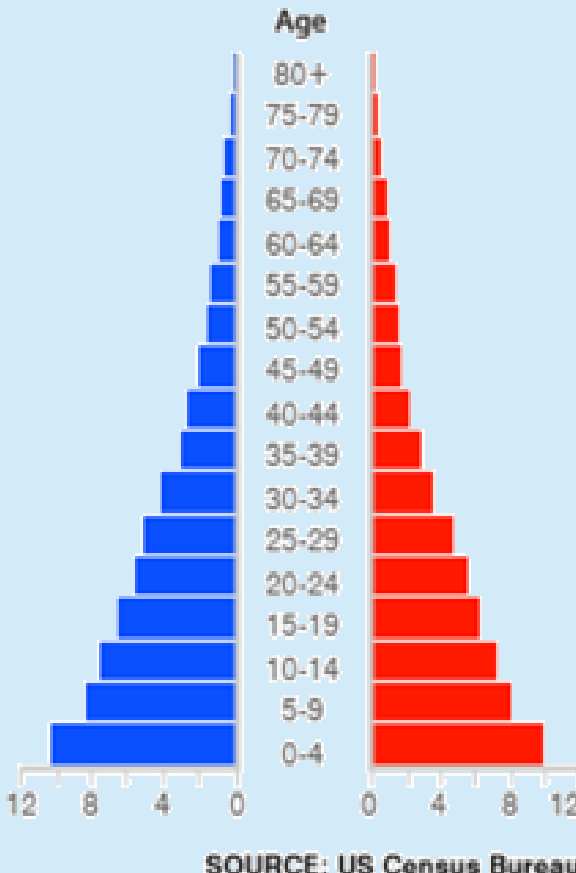
# Nigeria at a glance: Demographics

## POPULATION BY AGE (IN MILLIONS)

United States Total population: 301m



Nigeria Total population: 140m



SOURCE: US Census Bureau



Population (millions, 2017 est)

321

182

Median Age

37.8

18.2

Life Expectancy

79

53

# Nigeria at a glance: People & Culture



**Ethnic Groups**

**250**

**Indigenous Languages**

**Over 500**

**Business Language**

**ENGLISH**

# Nigeria at a glance: Government



Type

**Federal Republic**

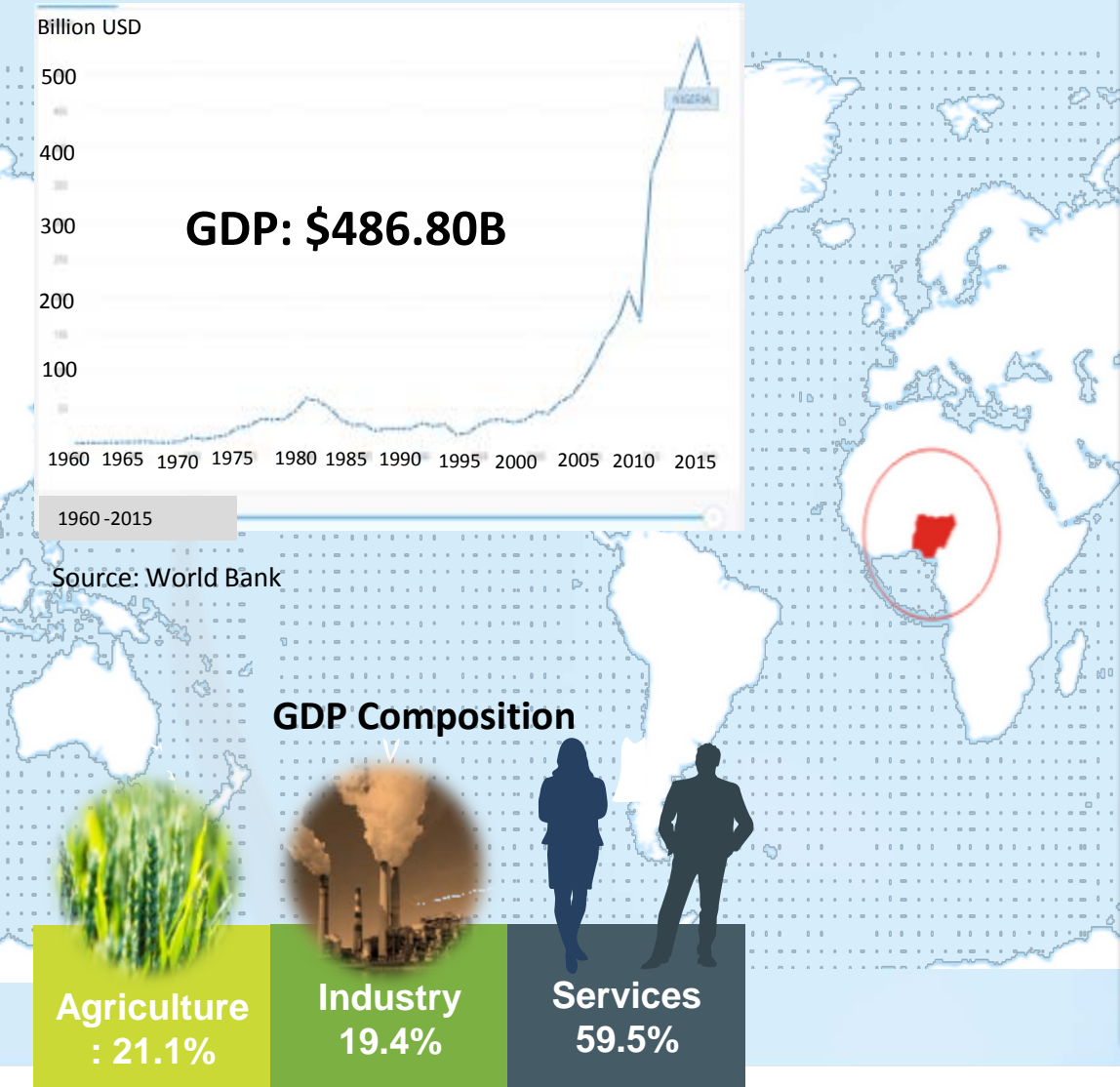
3 Tiers



**Federal, State & LGA**

3 Arms

**Executive, Legislative  
& Judiciary**

# Nigeria at a Glance: Economy...





GDP

**\$18 Trillion    \$486.80B**

USD/Naira Exchange Rate

**\$1                    N 306**

Inflation Rate

**2.5%                17.26%**

Unemployment Rate

**4.9%                13.9%**



# Nigeria Financial Services Landscape...

## Regulators / Supervisors

Central Bank of Nigeria

Securities and Exchange  
Commission

National Insurance  
Commission

Nigerian Deposit Insurance  
Cooperation



## Players

Banks 22

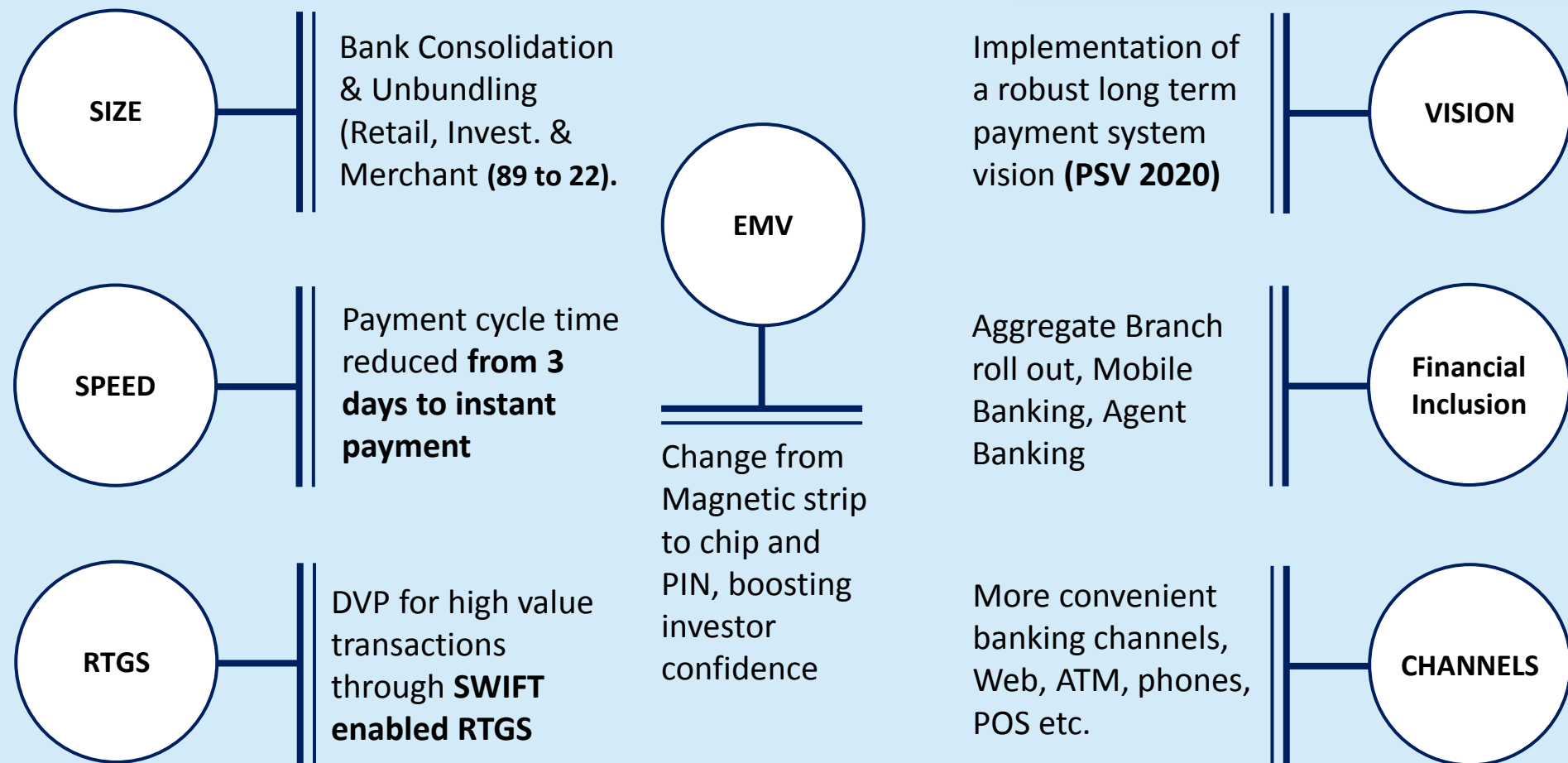
Bureaux -de-  
Change 2998

Microfinance  
Banks 984

Primary  
Mortgage Inst. 34

Development  
Finance Inst. 6

# Changes that Defined the Nigerian Financial Services Landscape...



# Bank Categories and Capitalization...

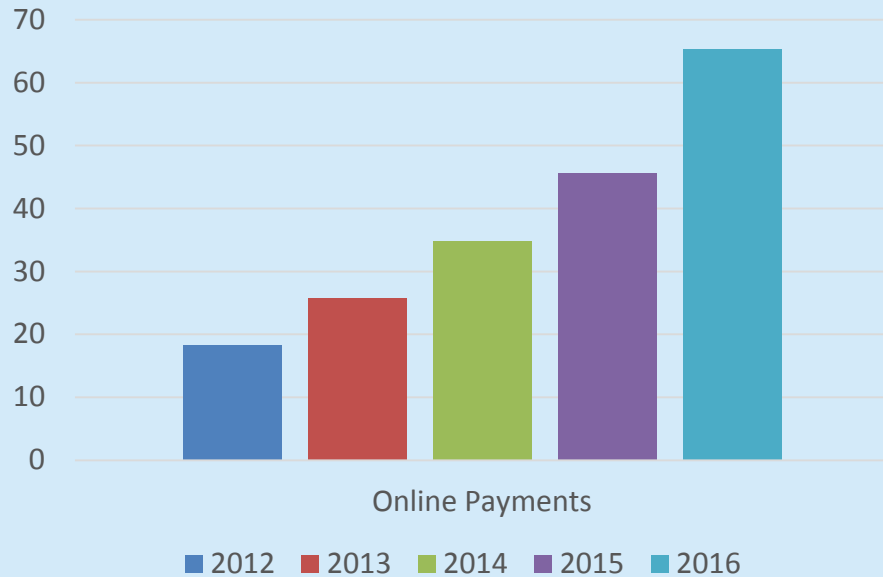
\$99.1Billion

**Total market  
capitalization**

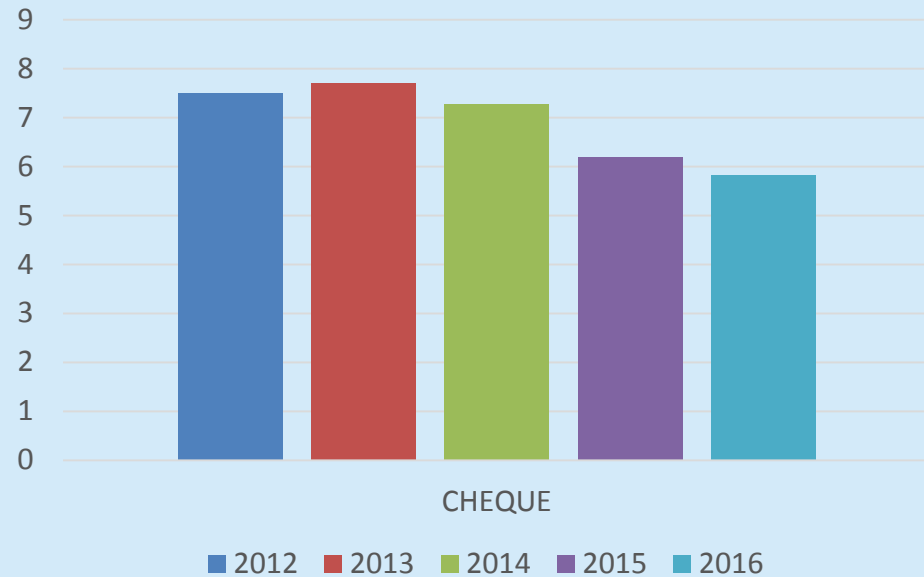
Type	Category	Minimum Required Capital	
		Naira(₦)	\$ Equivalent
Deposit Money Banks	Regional	10 billion	32.68M
	National	25 billion	81.7M
	International	50 billion	163.4M
Merchant Banks		15 billion	49M
Non-Interest Banks	Regional	5 billion	16.34M
	National	10 billion	32.68M
Microfinance Banks	Unit	20 million	65,359.4
	State	100 million	326,797.3
	National	2 billion	6.54M

# Payment Channels Evolution: 2012 - 2016

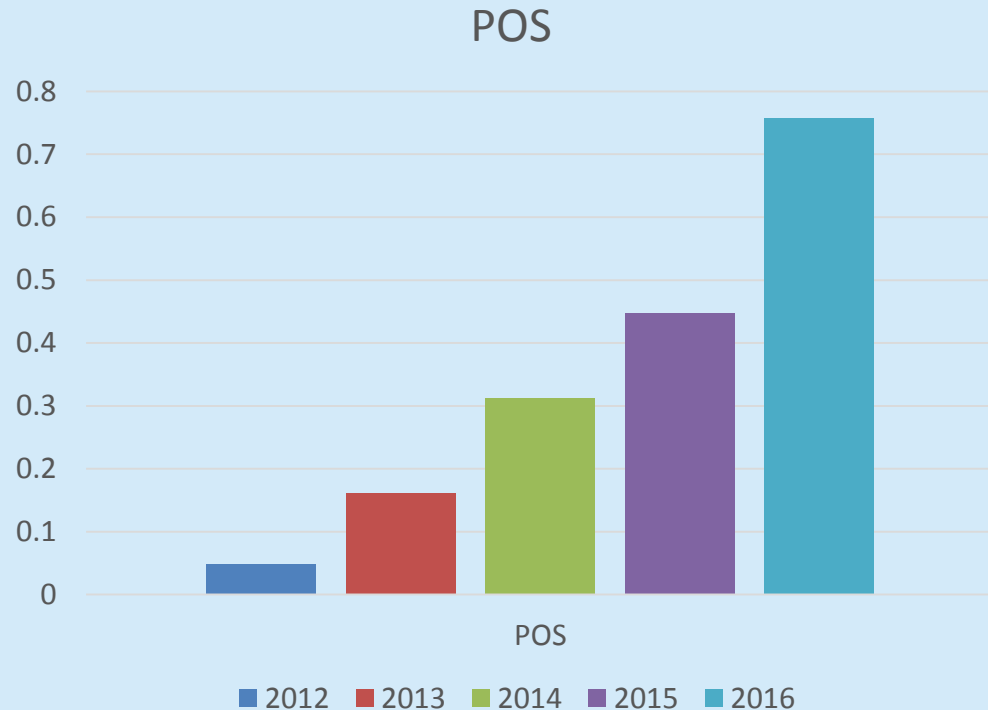
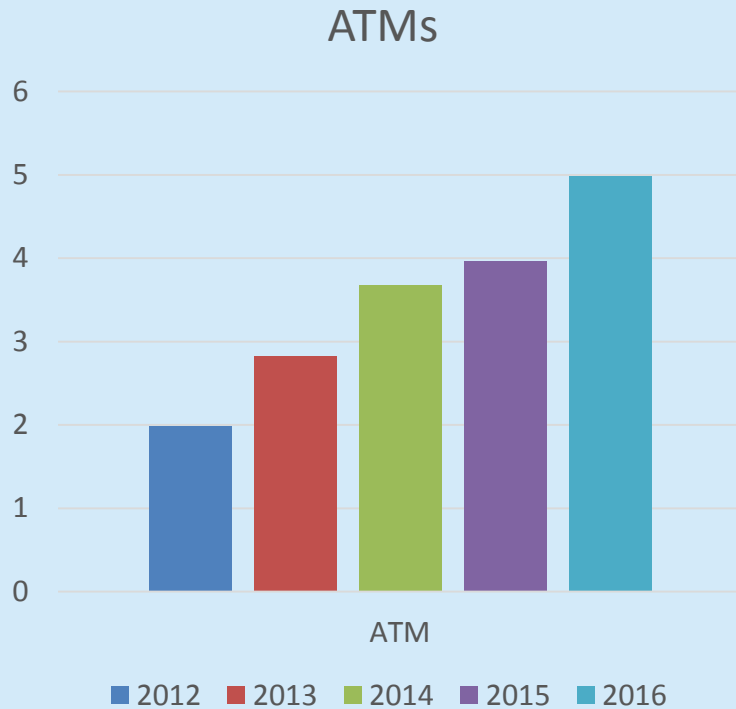
## Online Payments



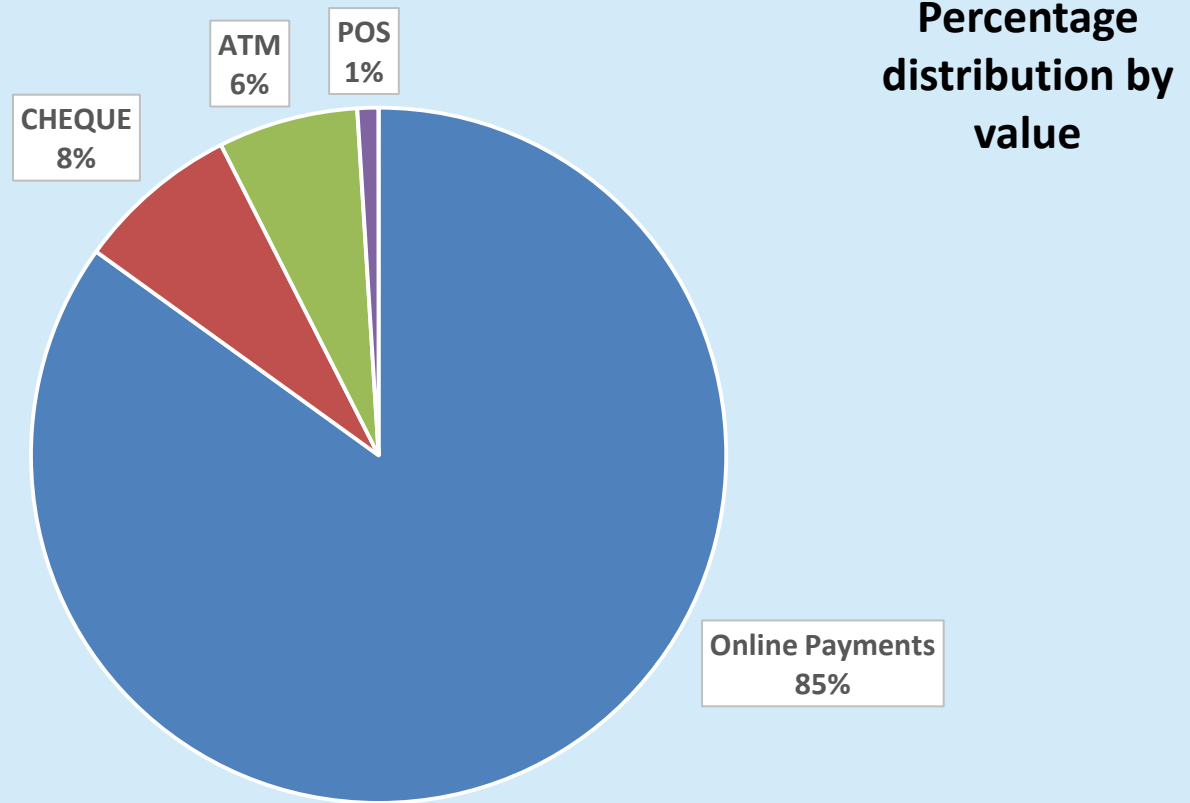
## Check Payments



# Payment Channels Evolution: 2012 - 2016



# Payment Channels breakdown: 2016



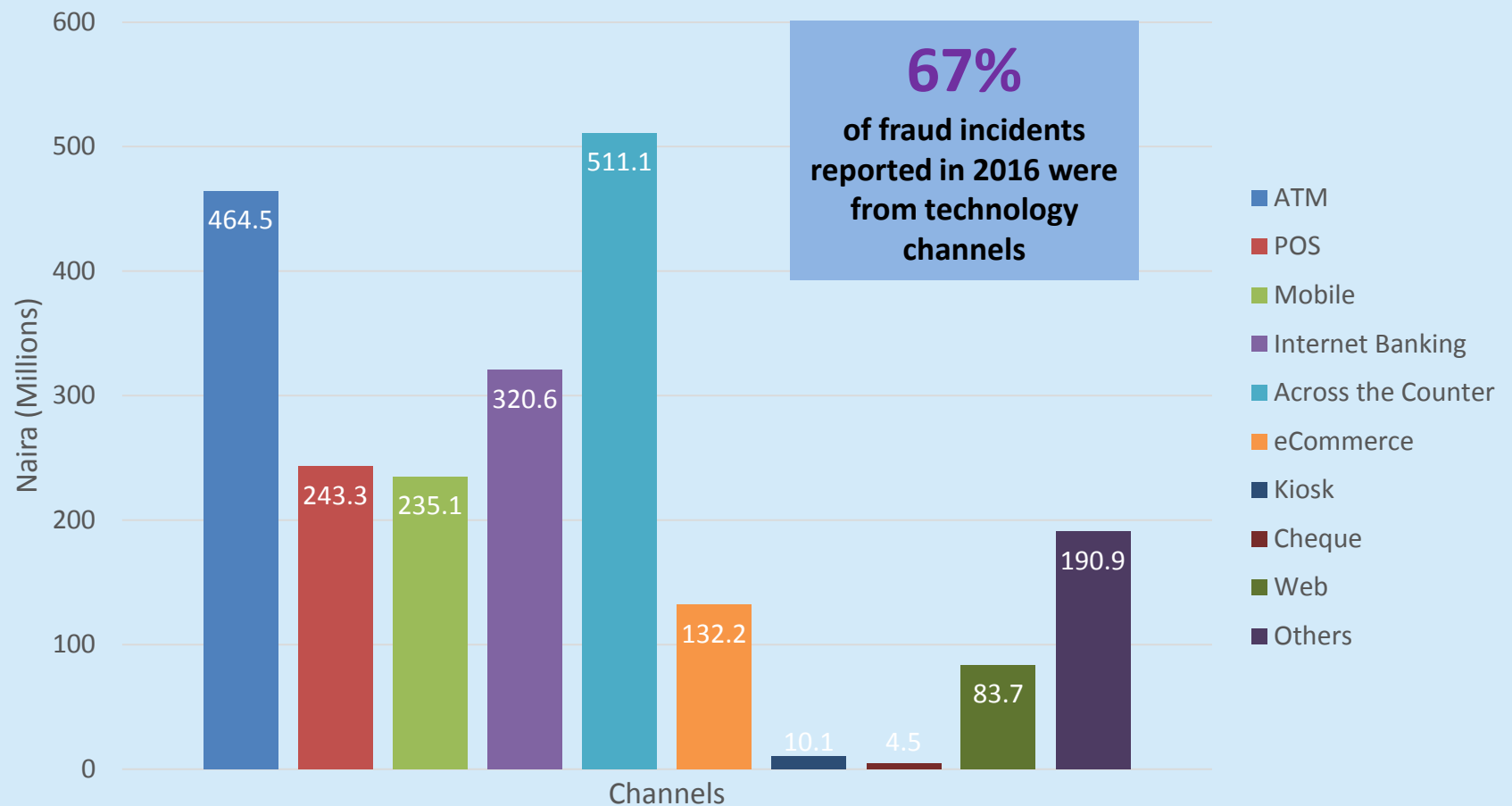
# Technology remains the key driver...



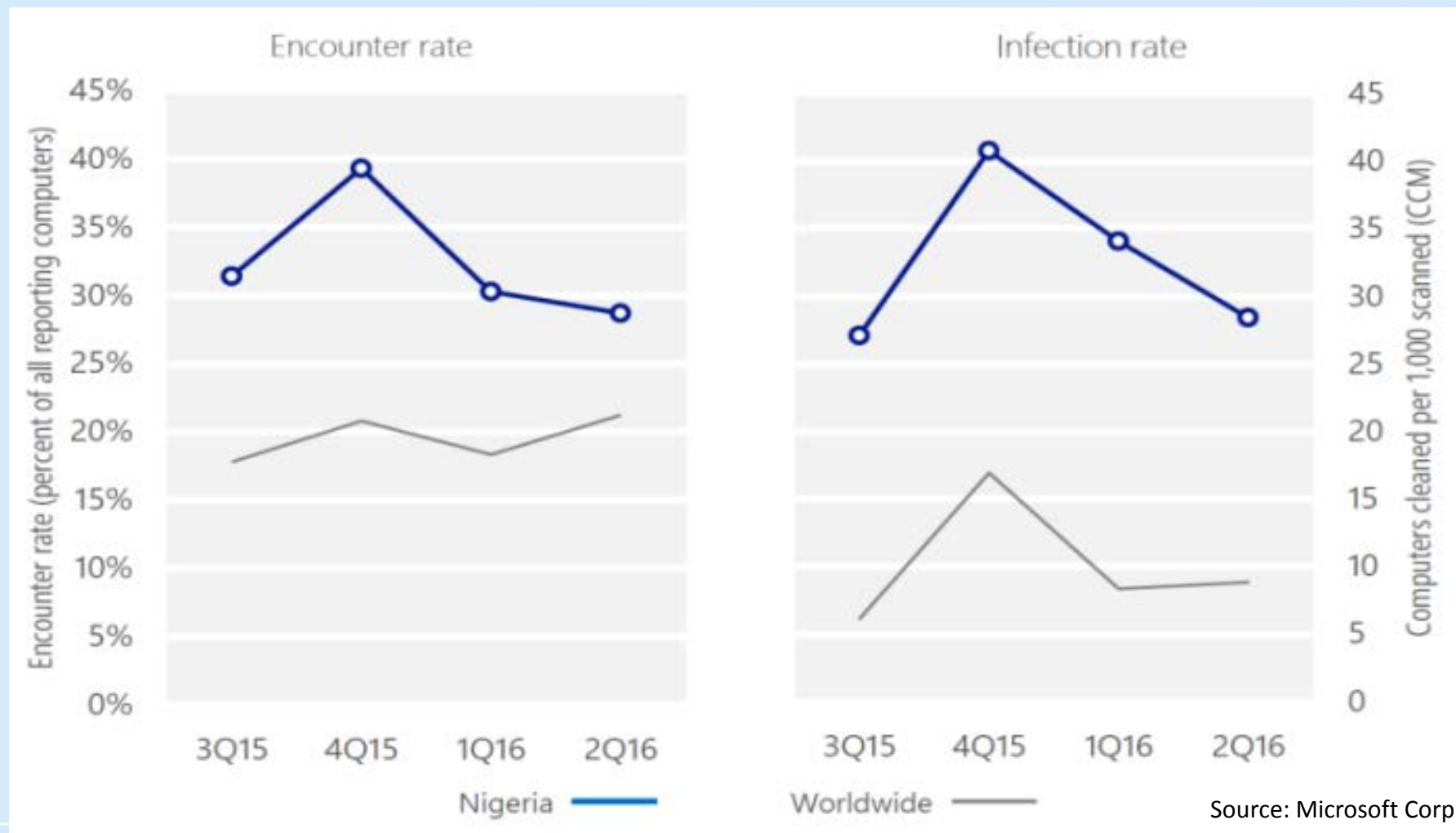
**Nigeria**  
**104m Internet Users**  
**By 2020. More than Russia**  
**and Brazil**

**92%**  
of transactions  
in 2016 were  
initiated from  
technology  
platforms

# and related fraud and cybercrime incidents are rising...



# Malware is a major concern



# Sources of cybersecurity breach

**Advanced  
Persistent Threats  
(APTs)**

**Insider & Internal  
Threats**

**Mobile Banking  
Breaches**

**Market Trading  
Breaches**

**Denial of Service  
(DOS)**

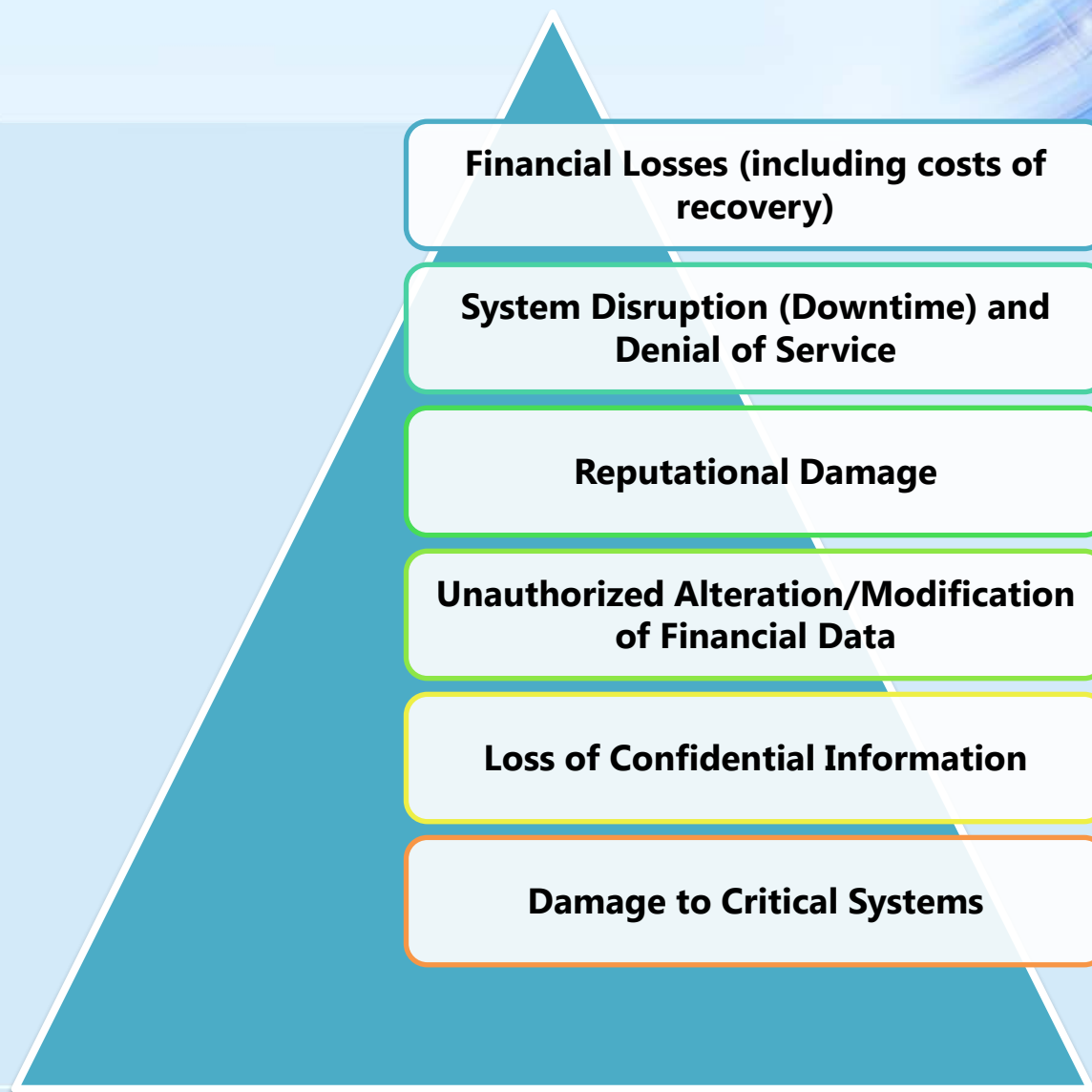
**Account Takeovers**

**3<sup>rd</sup> Party Payment  
Processor  
Breaches**

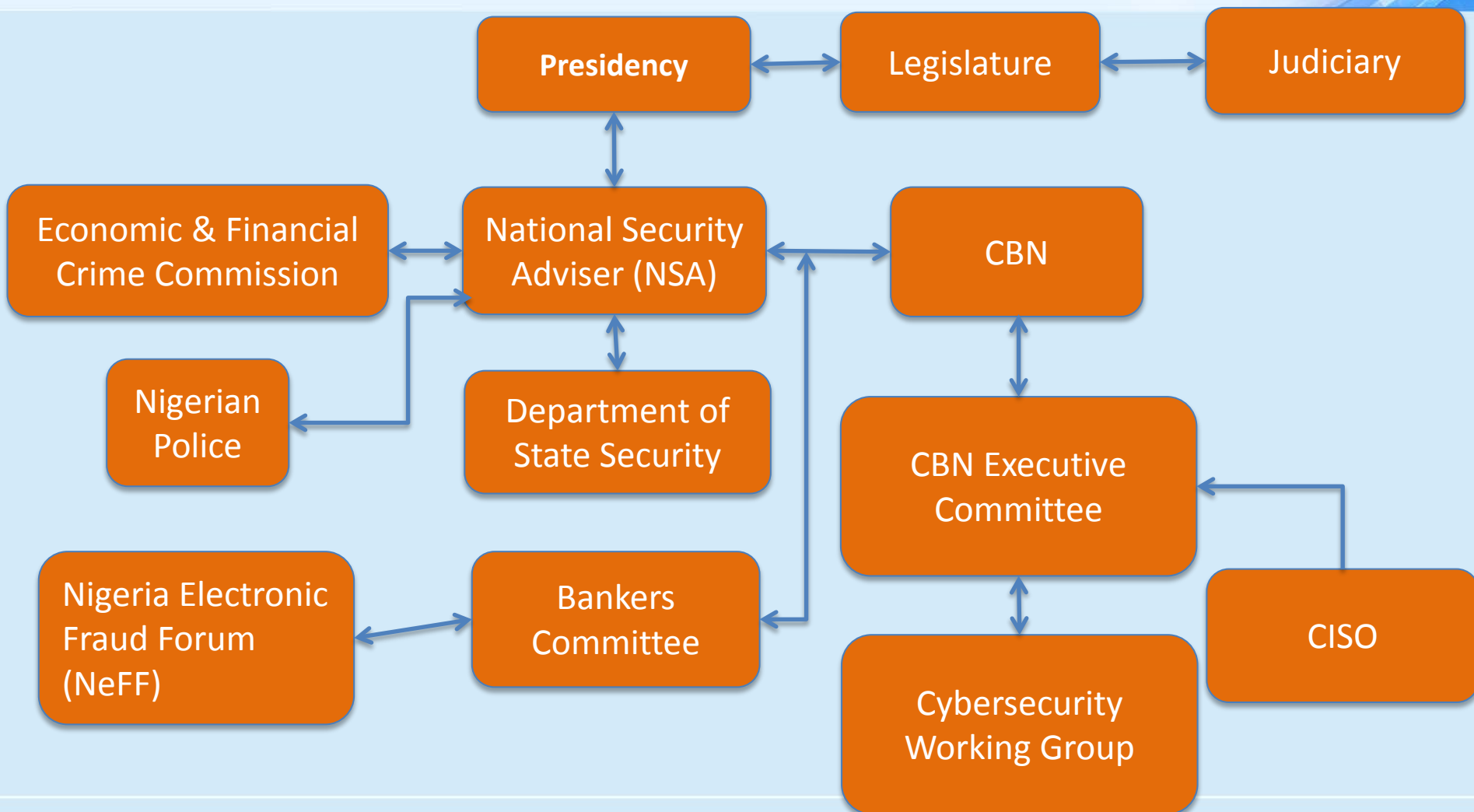
**Supply Chain  
Infiltration**

**Payment Cards  
Skimming**

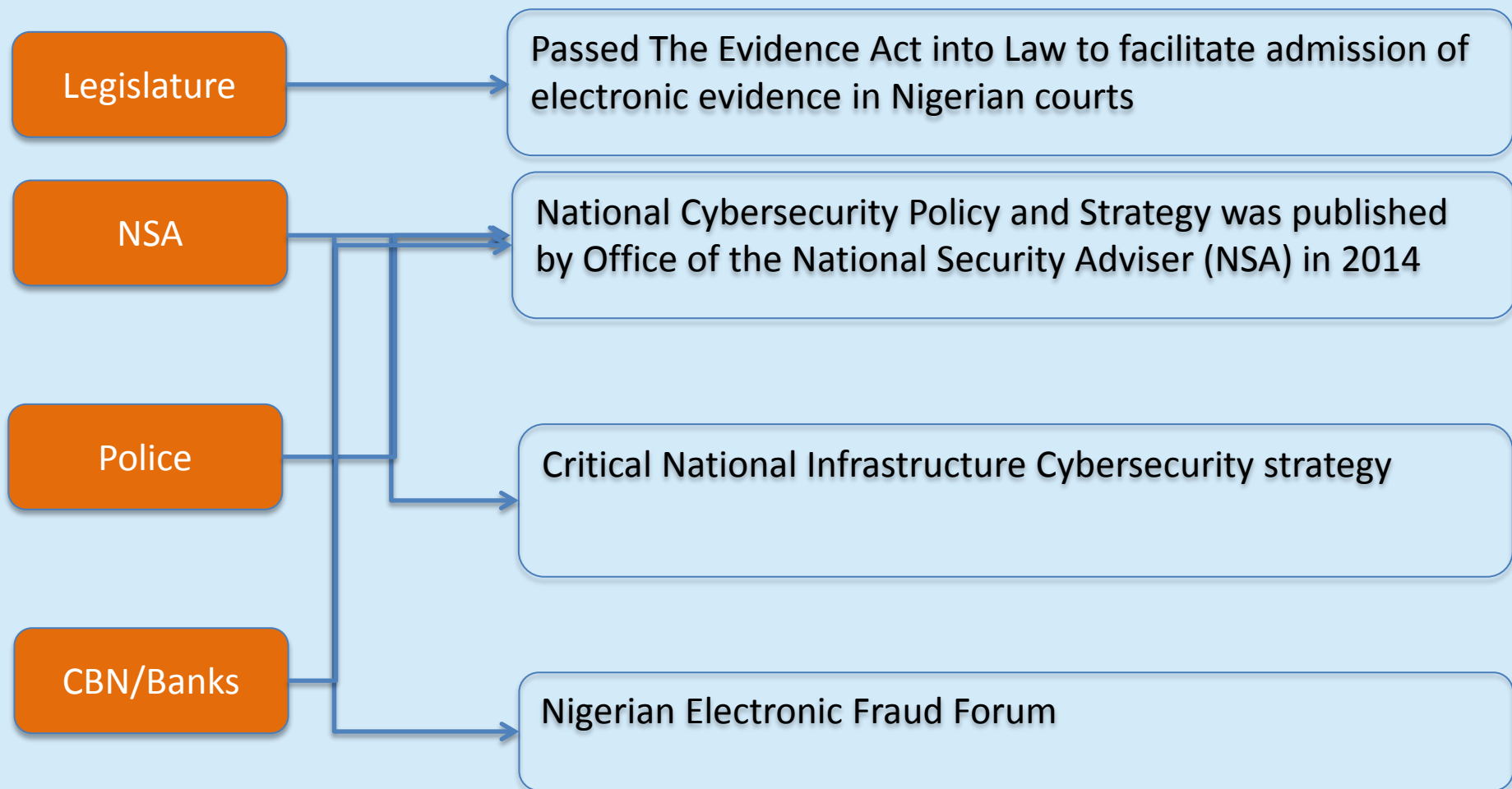
# Impact of Cybercrime...



# The key stakeholders...



# Concerted effort to fight Cybercrime



# Highlight of the Nigerian Cybersecurity Act...

Protection of Critical  
National  
Infrastructure

Unauthorized  
Modification of  
Computer Systems

Duties of Financial  
Institutions  
(Customer  
Verification, KYC)

Duties of Service  
Providers (Records  
retention/protection  
of Data)

# Overview of our approach...

- Tools and capabilities for 'pervasive monitoring'
- AI and ML tools
- Heuristics and Forensics
- Highly skilled/certified Tech personnel.

Technology

- Awareness
- Collaboration and Information Sharing
- Board-level involvement

People

Process

- IT Risk Assessment and Pricing
- **More effective Supervision**

# Overview of ongoing initiatives...



Bank wide Anti-Fraud Solution (BVN, CSOC, etc)



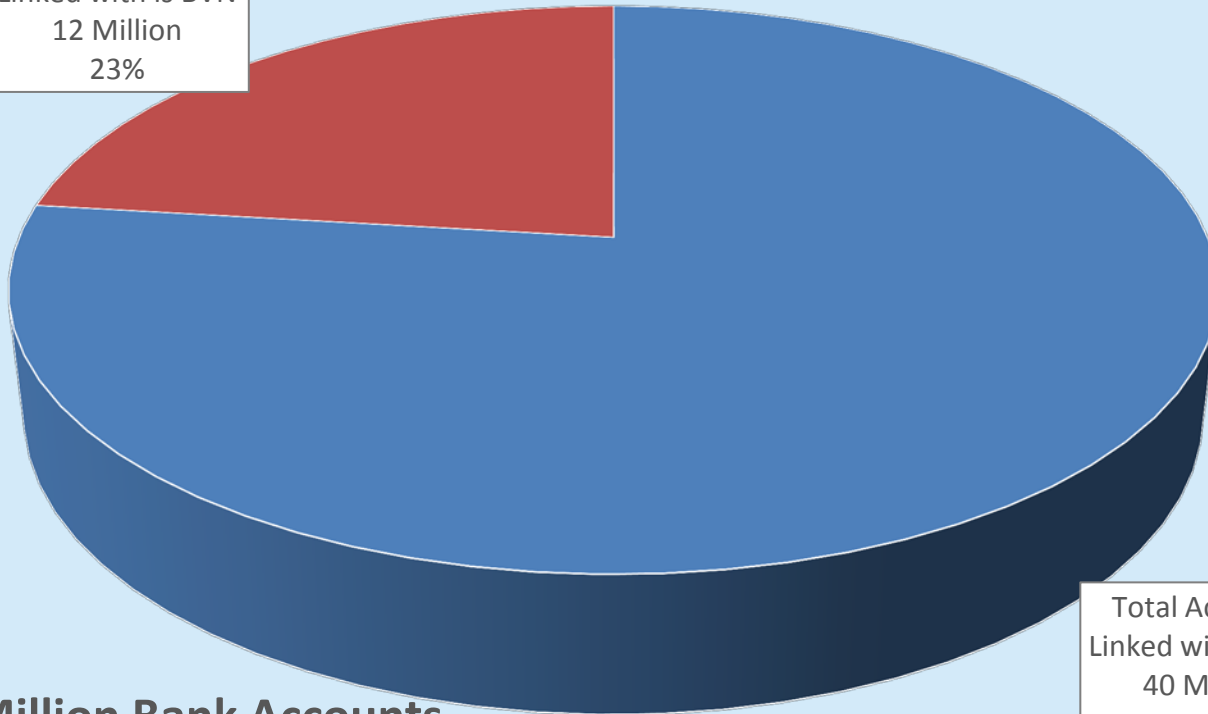
Early Warning and Intelligence Sharing Capability



Bankers Committee – Subcommittee on Payments System

# The BVN Project...

Total Accounts Not  
Linked with is BVN  
12 Million  
23%



Total Accounts  
Linked with BVN is  
40 Million  
77%



**Biometric  
Verification  
Number**

52 Million Bank Accounts  
28 Million Unique BVN Numbers

■ Total Accounts Linked with BVN is 40 Million ■ Total Accounts Not Linked with is BVN 12 Million

# CBN Initiatives to Combat Cybercrime...

## Virtual Currency...



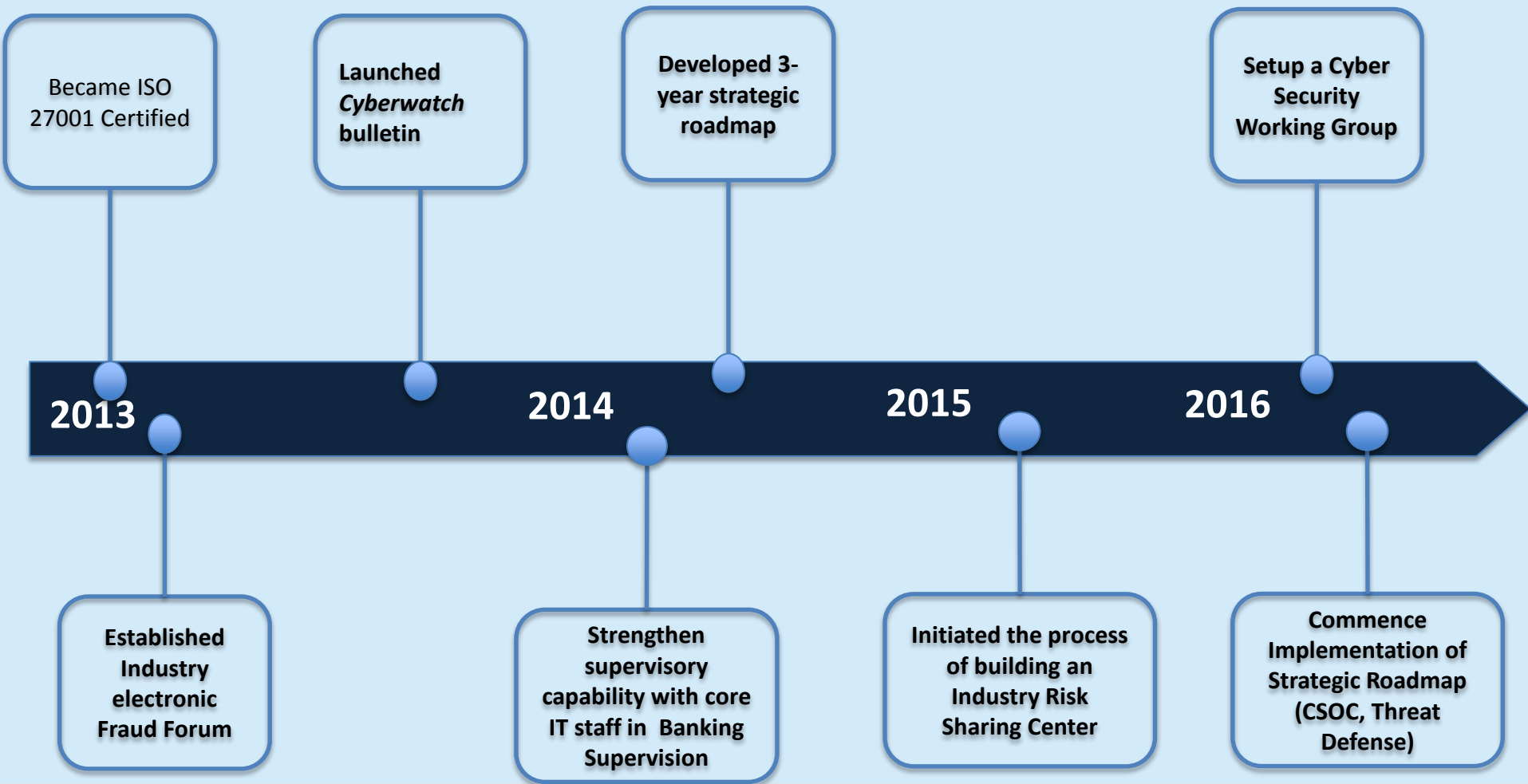
### Rationale

To develop capacity to monitor and supervise block chain/cryptocurrencies activities in Nigeria; particularly in area of AML/CFT

### Outcome

- The bank issues cautionary notice to stem abuse and fraud
- The implementation roadmap for Blockchain and cryptocurrency

# Our Cybersecurity Journey...



# Outlook for 2017 ...

- Malware and insider abuse will remain leading concerns
- Ransomware and extortion are on the rise
- Increasing dependence on technology (e.g. internet of things, mobile banking,) is heightening our exposure
- Increasing vulnerabilities identified in technologies from well-known vendors

# Conclusion

- A youthful and unemployed population can be lured into cyber crime easily, as barrier to entry is low
- More disclosure needed to increase the incident response mechanism and knowledge sharing among industry players
- Increase in business security spending on cyber defense capabilities to tackle rising and evolving cyber offense
- Formal regulation of cybersecurity in the FSI to safeguard the trust in the financial system
- Reputational damage is the highest risk factor