

www.pwc.com

# *Audit Analytics-Rethinking the Audit function*

*Presented by Femi Osimubi at the 38<sup>th</sup> quarterly general meeting of the Association of Chief Audit Executives of Banks in Nigeria (ACAEBIN) on 13 December 2017*

*Strictly Private  
and Confidential*

*December 2017*



**pwc**

---

# *Agenda*

<b>Innovation and Disruption</b>	<b>4</b>
<b>Audit automation</b>	<b>14</b>

---

The future belongs to those who  
prepare for it today...

Malcolm X

---

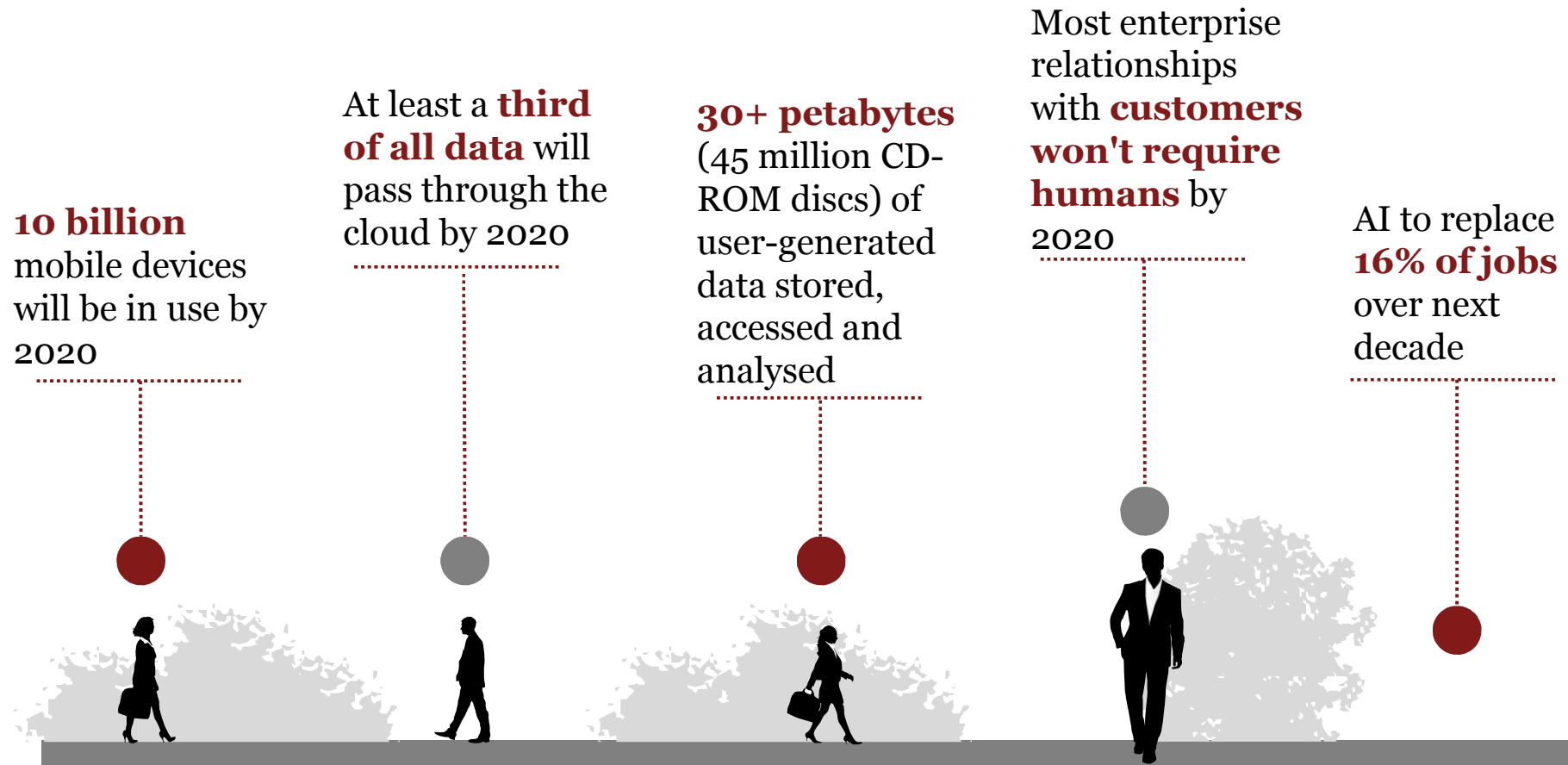


---

# *Innovation and Disruption*



# The world is moving at a fast pace and technology is changing everything



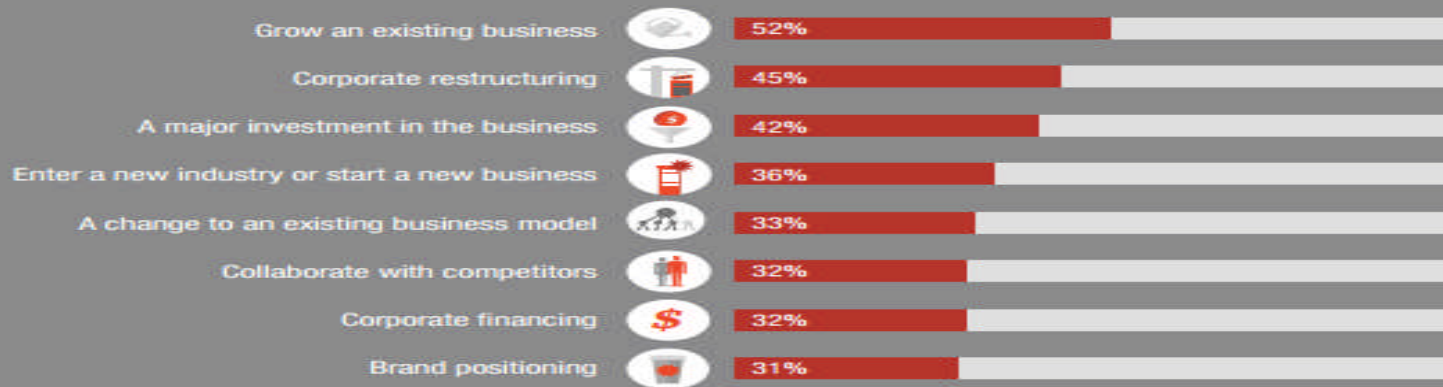
*The world is on the verge of a Fourth Industrial Revolution...*

Source: IBM big data hub, Information week, Motley Fool, Forbes (2016 data)

# *It is changing the way we make decisions and the way we do business especially with the advent of data & analytics...*

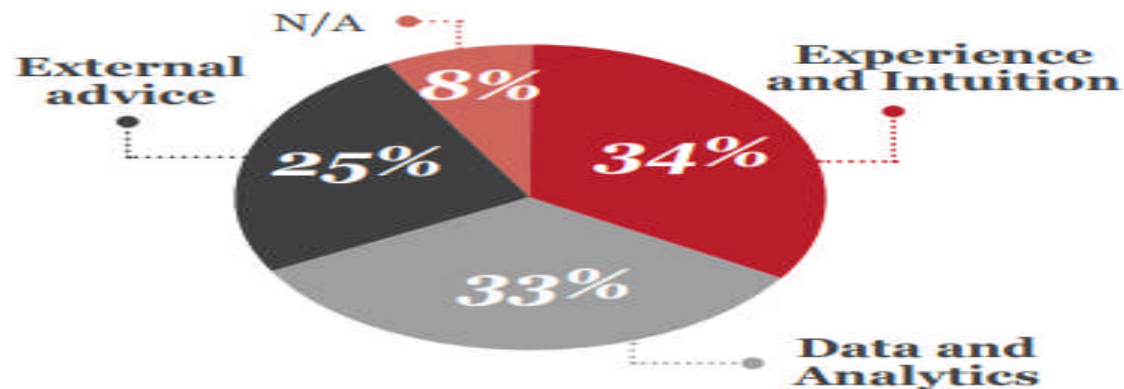
## *Where speed and sophistication count*

*The bigger the stakes, the bigger the difference that sophisticated analytical capabilities can make*



Source: PwC's Global Data & Analytics Survey 2014

*When making their next big decision, executives told us they will rely on:*



# *It is also changing the landscape of the audit function...*

## Changing Landscape

### **01** *New areas to review*

As organisations embed emerging technology there will be the need for internal audit to review them

### **02** *Changing lines of defense*

New risks and controls will mean that the 1st line changes, the 2nd line evolves and the 3rd line needs to be ready!

### **03** *New skills and capabilities*

As the types of audits you perform changes, you will need to identify people with new skills and capabilities in these areas

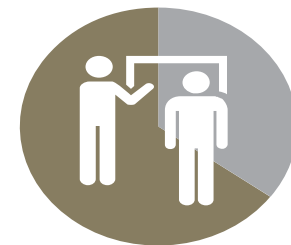
### *Stats from PwC's State of the Internal Audit Profession Surveys*



**40%**

of internal audit functions have increased their investment in data analytics in the last three years

<sup>1</sup> 2016 State of the Internal Audit Profession Study



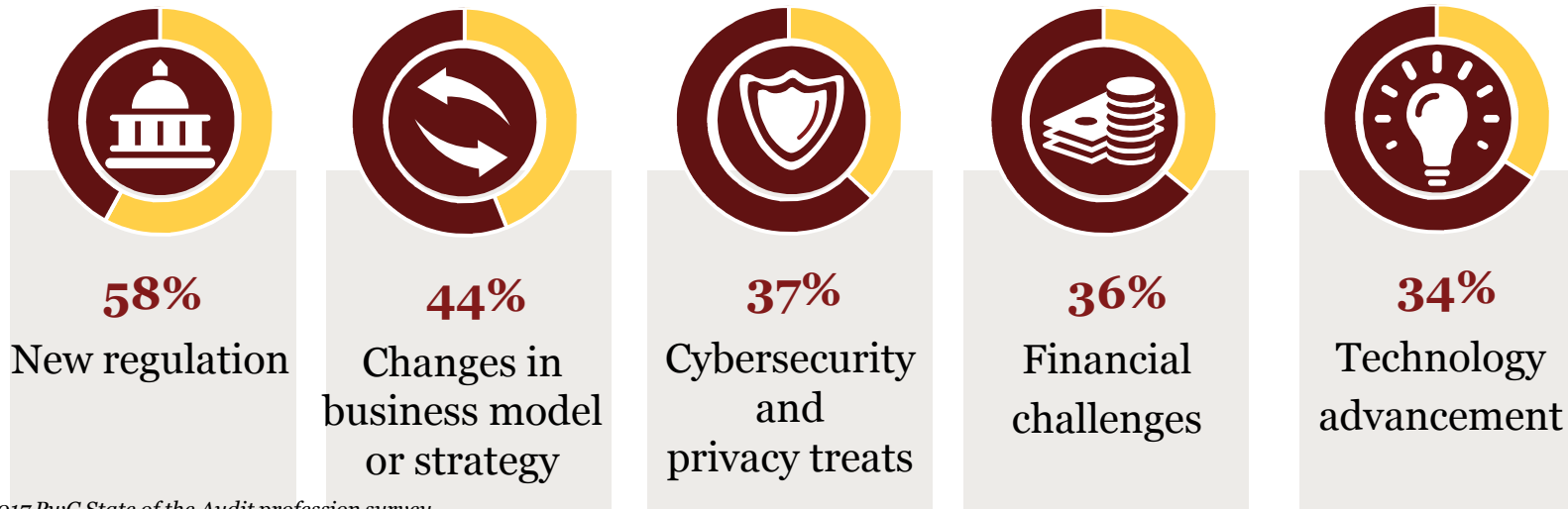
**65%**

of CAEs report they have some data skills on their team either in-house or through third parties

<sup>2</sup> 2015 State of the Internal Audit Profession Study

## *...alongside other disruptive forces*

The top five disruptions experienced by companies in the last 2 years.

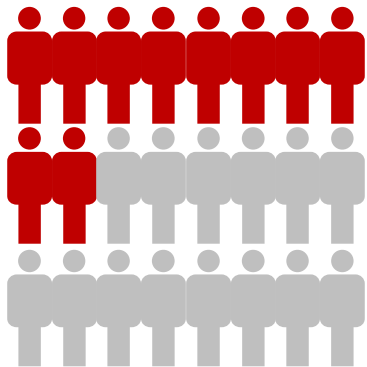


Source: 2017 PwC State of the Audit profession survey



# *...and today organisations can no longer continue with business as usual*

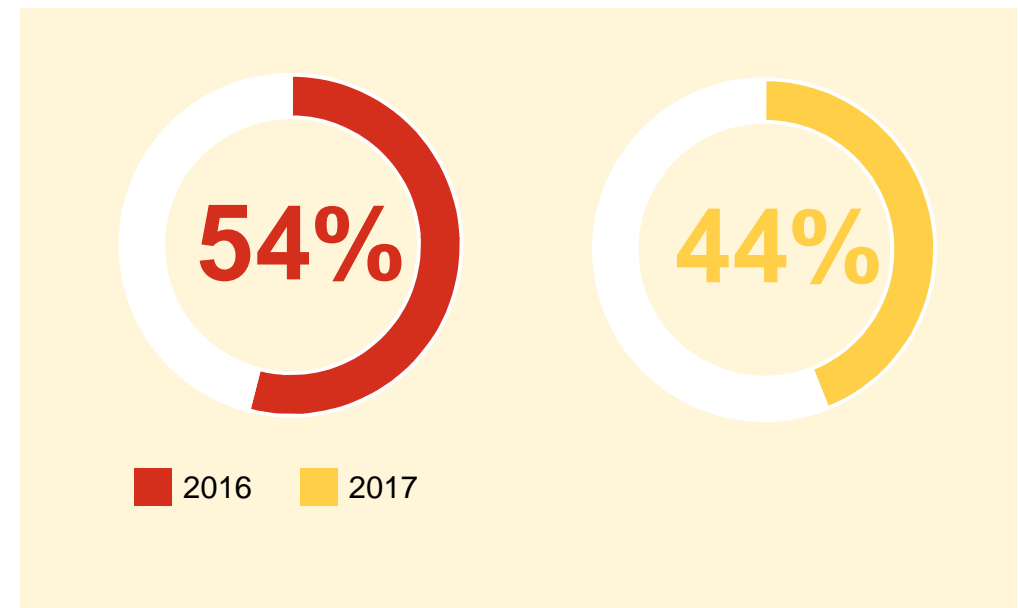
## **Stakeholders continue to raise the bar on value expectations...**



**48%**

*of stakeholders want Internal Audit to reach trusted advisor status for the business – however Internal Audit appears to be losing ground in trying to keep pace with stakeholder expectations.*

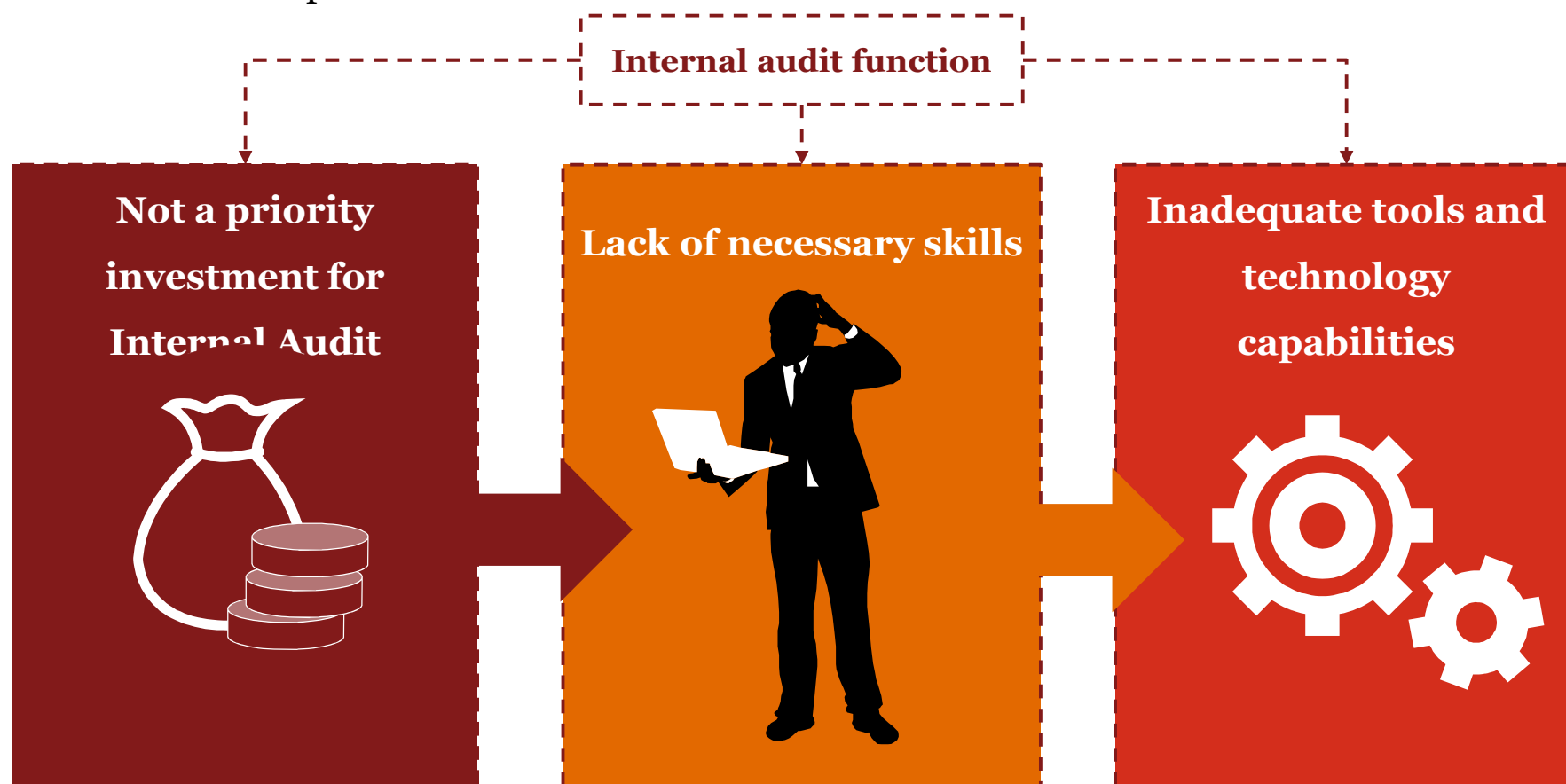
## **% of stakeholders who say internal audit adds significant value**



*Source: 2017 State of the Internal Audit Profession Study*

## *The internal audit function is also faced with a few other challenges...*

77% of board members and 68% of management believe Internal Audit's current level of involvement in disruption is not sufficient



---

***...and feedback from surveys over time indicate that more value can be derived from internal audit***

---

“ My audit budget is finite, yet I am expected to increase coverage

“ Our auditors spend too much time on non value-added activities

“ We need to fundamentally improve audit quality and value

“ We need to better align with compliance and risk

“ We need to better understand risk



*Source: PwC's 2013 State of the Internal Audit Profession Whitepaper*

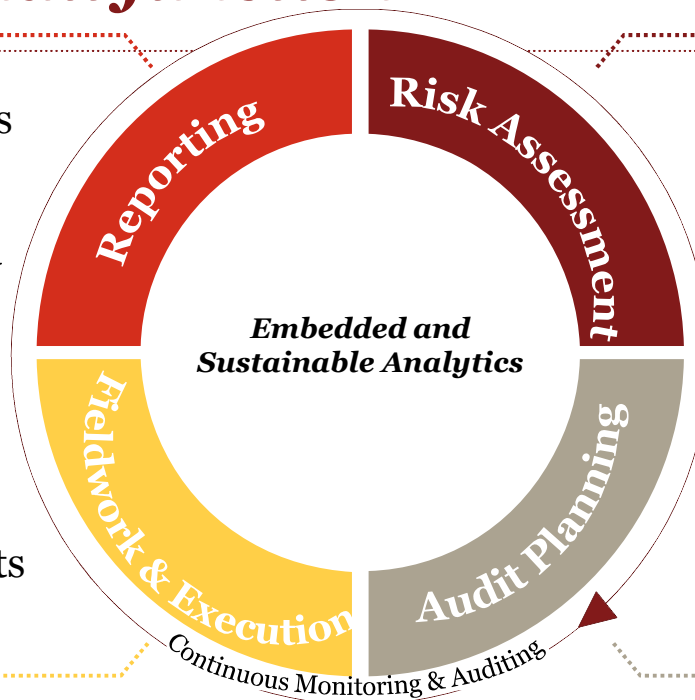
# ***Analytics is the solution and it presents unprecedented value for the audit function***

**04**

- Audit and executive reports
- Issues dashboard
- Compliance metrics
- Analytics validation review

**03**

- Multi-unit auditing
- Data-driven testing
- 100% coverage
- Process, control, and results validation
- Root cause identification



**01**

- Enterprise risk management
- Annual internal audit risk assessment
- Risk monitoring
- Business unit or site-level profiling

**02**

- Project-level risk assessment
  - Audit pre-planning
  - Audit scoping and planning
  - Risk attribute sampling
- Embedded**

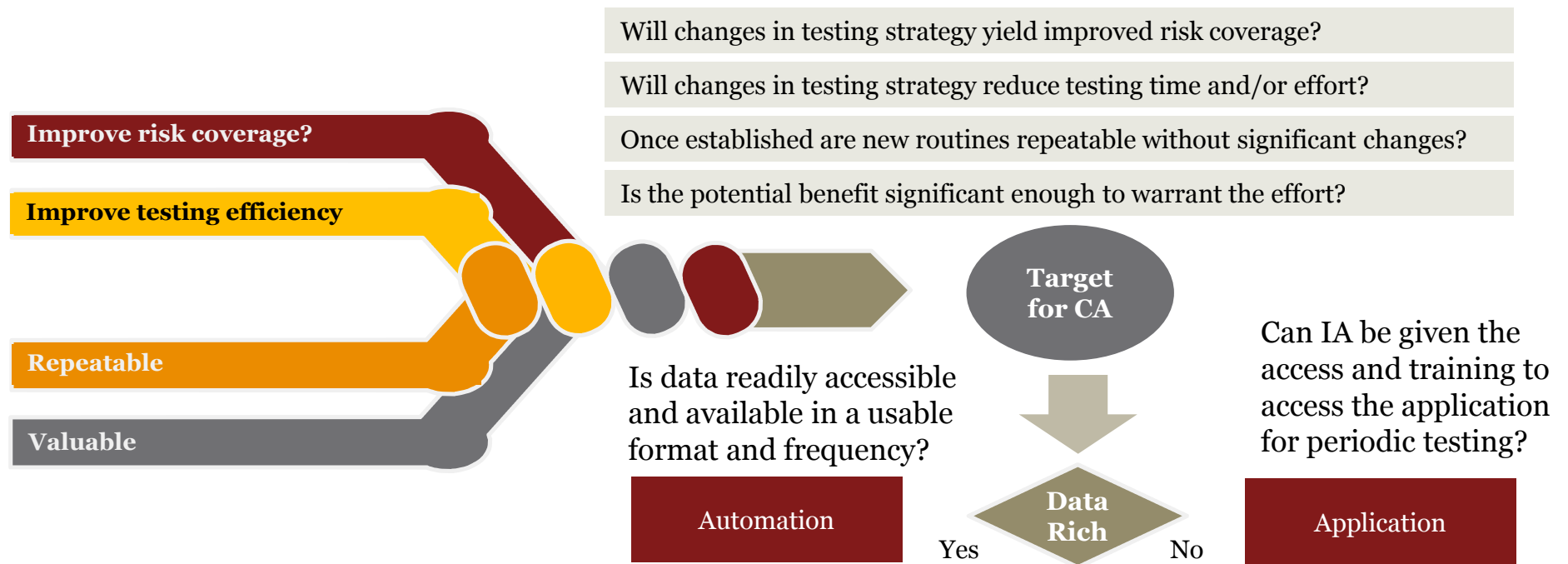
## **Benefits**

- Deeper business understanding to assist in audit intelligence
- Lower existing and future costs through automation of processes
- End-to-end testing for process and control verification
- Identification of anomalies and patterns for high risk, leading to enhanced coverage
- Effective communication of key issues and findings through dynamic dashboards
- Audit functions that are more relevant to the business and boards



# Audit automation – Approach

Based on an understanding of the clients business, risk profile, IT environment, audit plan, expressed pain points etc. as well as their current maturity related to continuous auditing and audit automation, develop an initial list of potential target processes based on the criteria defined below:



---

# *Audit automation*



# What data do we need to assure?

Data which is used in the processing of transactions e.g. customer data, vendor data, property data, bank account data etc.

E.g. data which highlights who is doing what activities and in what ways.



Data and information used as a basis for critical decision making, financial statements, regulatory reports etc.

E.g. data which illuminates how processes and controls are operating in practice.

Data which shows how systems are architected and how data flows and is reconciled between systems.



# Data Analytics in Internal Audit

*Data analytics is an audit enabler, helping internal audit teams continuously innovate and drive value throughout the internal audit lifecycle and across the organisation, enabling a sharper focus on risk areas and business issues.*

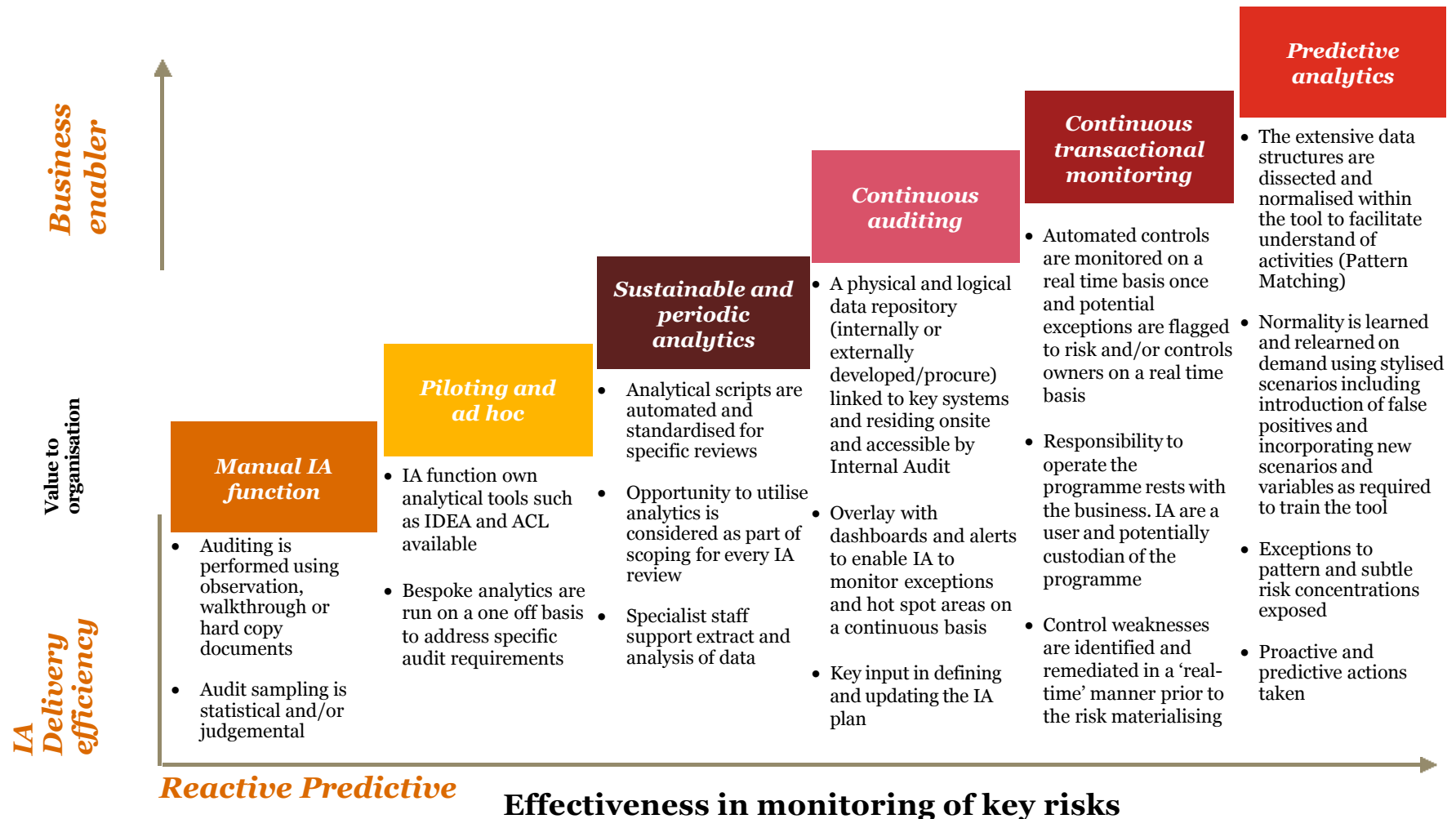
## ***Some benefits of embedding data analytics in audit activities include:***

- ✓ The ability to place focus on the more dynamic parts of the business with higher risks through a top-down and bottom-up approach in risk assessment
- ✓ Deeper business understanding to assist in audit intelligence
- ✓ Identifying anomalies and patterns for high risk, leading to enhanced audit coverage
- ✓ Timely identification of issues due to real-time visualisation of data
- ✓ End-to-end testing for process and control verification
- ✓ Lower existing and future costs through automation of audit processes
- ✓ Effective communication of key issues and findings through dynamic dashboards



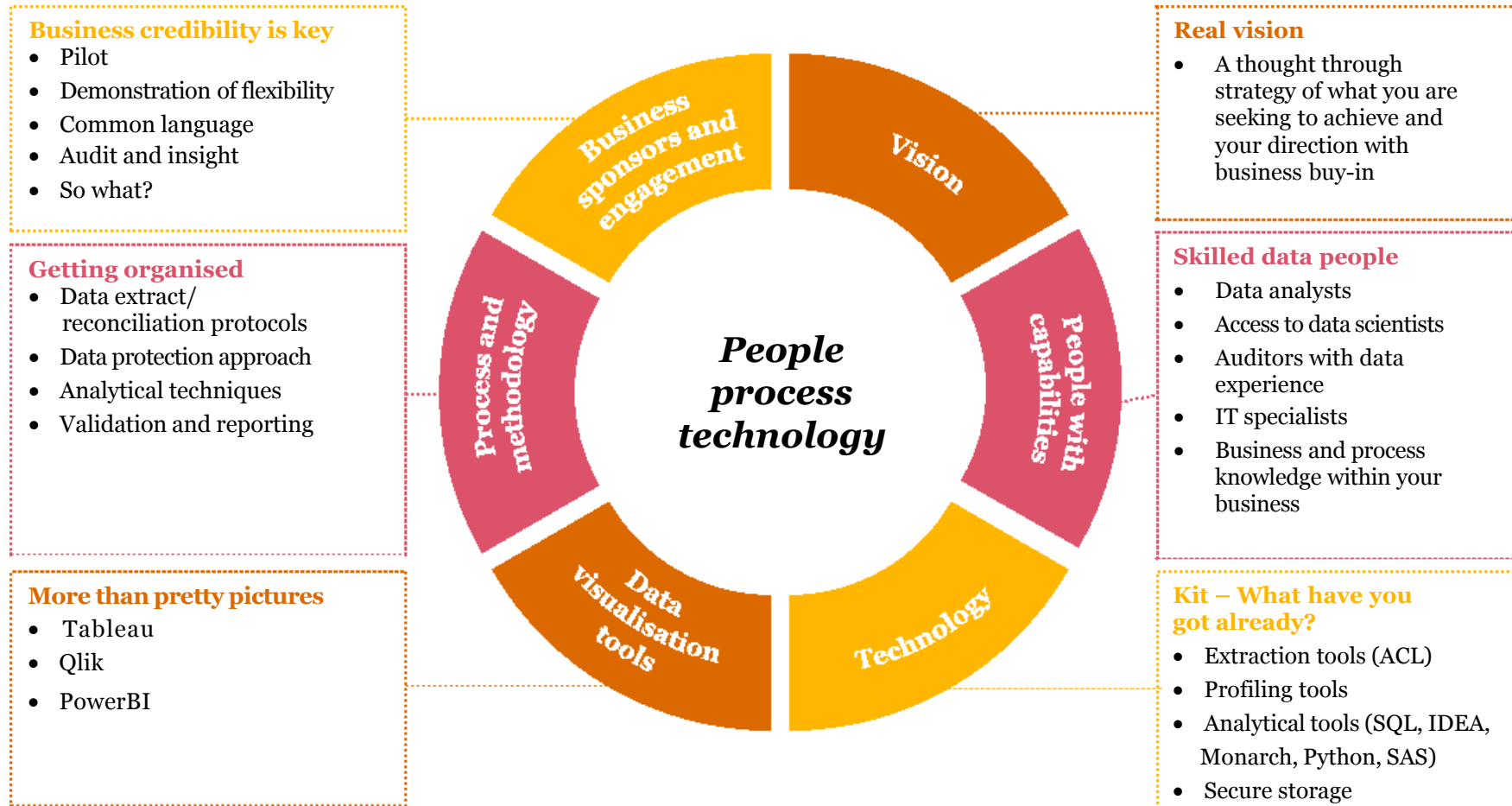


# Data maturity in internal audit



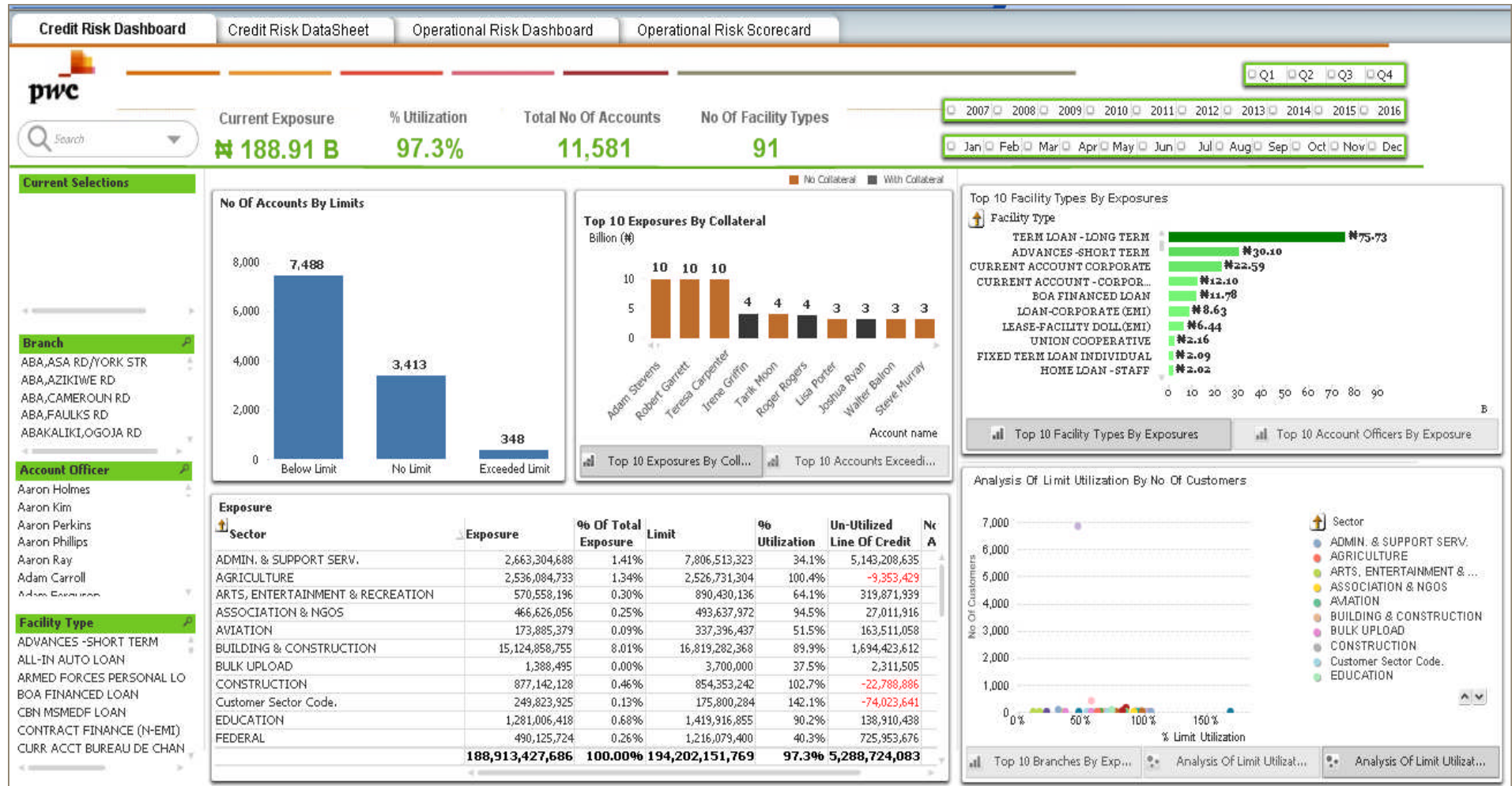
# Building data analytics capability

## Next steps



# Data analytics in the internal audit lifecycle

## What good looks like



# Data analytics in the internal audit lifecycle

## What good looks like

Credit Risk Dashboard | **Credit Risk DataSheet** | Operational Risk Dashboard | Operational Risk Scorecard

**pwc** Q1 Q2 Q3 Q4

Current Exposure: **₦ 188.91 B**    % Utilization: **97.3%**    Total No Of Accounts: **11,581**    No Of Facility Types: **91**

2007 2008 2009 2010 2011 2012 2013 2014 2015 2016  
 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

**Current Selections**

- Branch
  - ABA,ASA RD/YORK STR
  - ABA,AZIKIWE RD
  - ABA,CAMEROUN RD
  - ABA,FAULKS RD
  - ABA,KALITA COLLEGE RD
- Account Officer
  - Aaron Holmes
  - Aaron Kim
  - Aaron Perkins
  - Aaron Phillips
  - Aaron Ray
  - Adam Carroll
  - Adam Esom...
- Facility Type
  - ADVANCES -SHORT TERM
  - ALL-IN AUTO LOAN
  - ARMED FORCES PERSONAL LO
  - BOA FINANCED LOAN
  - CBN MSMEDF LOAN
  - CONTRACT FINANCE (N-EMI)
  - CURR ACCT BUREAU DE CHAN

**All Data**

Account name	Account no	Account Officer	Collater...	C...	Loan ...	Facility Type	NairaEQV	PD	Sanct_date	...
Aar Habartso	04139000017	Christine Collins		0	NGN Doubtful	PERSONAL LOAN 2	-19640.7	1	4/10/2013	
Aaron Habartso	12939000030	David Ellis		0	NGN Substa...	PERSONAL LOAN 2	-314626.99	4	6/9/2015	
Aaron Hubertso	6000293829	Judy Johnson		0	NGN Doubtful	CURRENT ACCOUNT INDIVIDUA	-3.15	7	-	
Aaron Andrews	00740000073	Jacqueline Reed		0	NGN Perfor...	ADVANCES -SHORT TERM	-249829.54	1	9/27/2013	10
Aaron Baker	048390000110	Ann Campbell		0	NGN Perfor...	PERSONAL LOAN 2	-207356.28	4	9/3/2014	
Aaron Balron	6001700229	Philip Bennett		0	NGN Doubtful	CURRENT ACCOUNT CORPORATE	-101461.43	7	-	
Aaron Bishop	001320000876	-		0	NGN Substa...	FIXED TERM LOAN INDIVIDUAL	-6000541.11	6	8/19/2015	744
Aaron Brooks	046390000001	Jean Alexander		0	NGN Substa...	PERSONAL LOAN STAFF	-154174.7	7	6/23/2014	
Aaron Burke	031320001189	Donald Lopez		0	NGN Doubtful	FIXED TERM LOAN INDIVIDUAL	-708089.28	1	11/25/2015	
Aaron Burns	6003081476	Antonio Howard		0	NGN Perfor...	CURRENT ACCOUNT INDIVIDUA	-110.74	4	-	
Aaron Burton	6002055184	William Johnson		0	NGN Perfor...	CURRENT ACCOUNT CORPORATE	-3284.04	4	-	
Aaron Carpenter	6002443044	Billy Reyes		0	NGN Substa...	CURRENT ACCOUNT INDIVIDUA	-134340.19	5	-	
Aaron Castillo	109390000034	Cynthia Alvarez		0	NGN Doubtful	PERSONAL LOAN 2	-641322.66	5	4/10/2014	
Aaron Chapman	022390000015	Jane West		0	NGN Doubtful	PERSONAL LOAN 2	-39384.24	1	5/20/2013	

**Customer Exposures With No Approval Limits**

Account Name	Exposure	Limit
Cerlos Gerze		431
Lillian Burns		541
Temmy Cerr		30,311
Beverly Lawrence		55,041,720
Cerl Berry		0
Helen Cerr		2,455,733
James Vesquez		123,910,756
Jose Shew		4,614,821
Mery Beker		7,600,812
Lillian Webb		3
Reymond Duncen		195,521
Jene Conner		5,347
	<b>188,913,427,686</b>	<b>0</b>

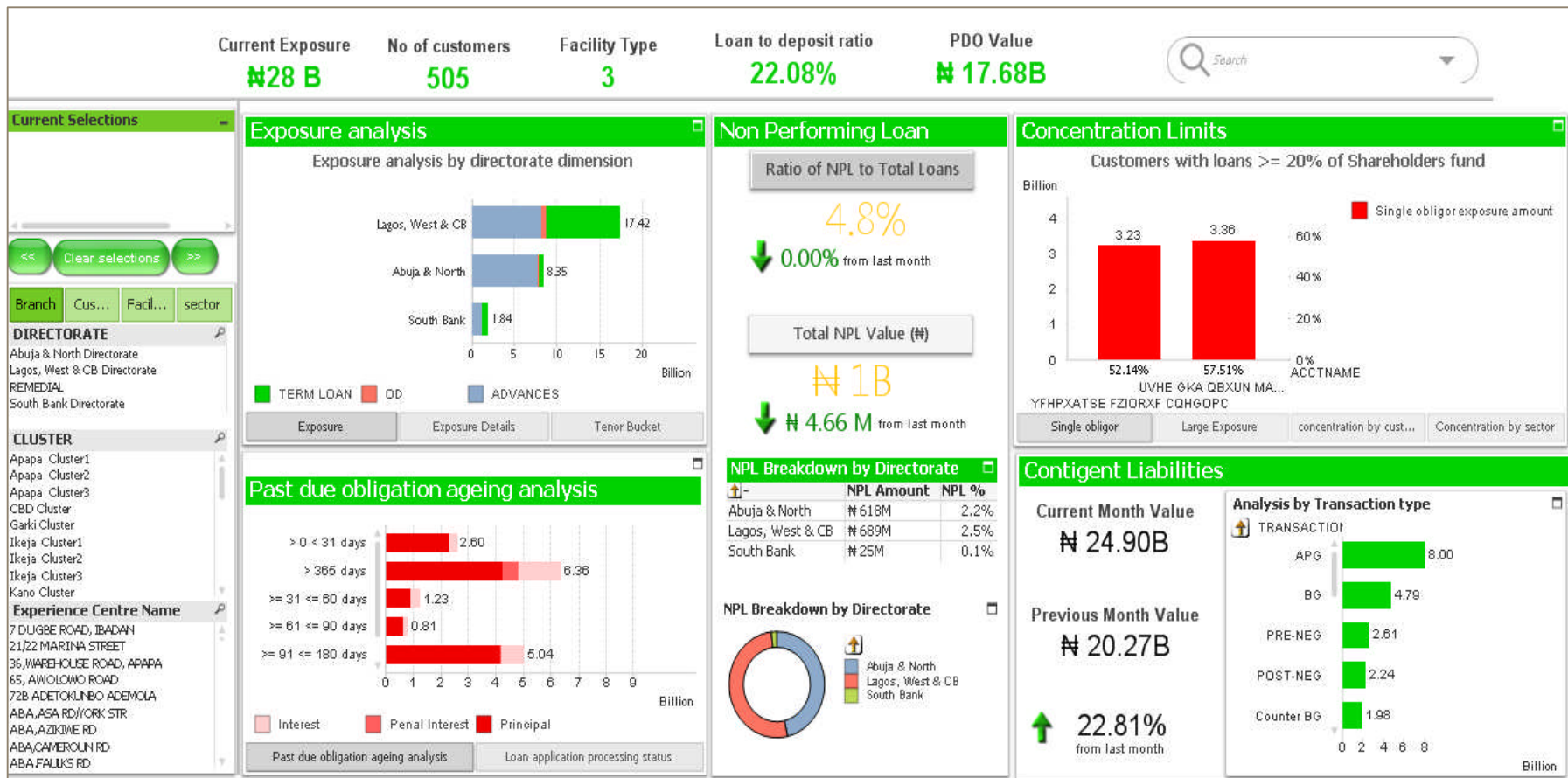
**Customer Exposures vs Credit Classifications**

Account Name	Facility Type	Loan Type	Limit	Exposure	% Utilization	Un-Utilized Line Of Cr
Doros Gobson	PERSONAL LOAN 2	Performing	160,000	133,275	83.3%	2
Pholop Torros	PERSONAL LOAN 2	Performing	900,000	288,377	32.0%	6
Scott Rood	PERSONAL LOAN 2	Performing	2,250,000	2,074,846	92.2%	1
Bovorly Wolls	PERSONAL LOAN 2	Performing	500,000	208,649	41.7%	2
Grogory Lynch	PERSONAL LOAN 2	Performing	330,000	74,134	22.5%	2
Lorry Groon	PERSONAL LOAN 2	Performing	150,000	87,491	58.3%	6
Carolyn Hunter	PERSONAL LOAN 2	Performing	600,000	363,077	60.5%	2
Horry Honry	PERSONAL LOAN 2	Performing	150,000	138,539	92.4%	1
Carolyn Hunter	PERSONAL LOAN	Performing	722,741	169,691	23.5%	5
Gregory Lynch	PERSONAL LOAN 2	Performing	1,500,000	1,271,672	84.8%	2
Phelep Torres	UNIVERSITY STAFF LOANS	Performing	2,000,000	1,329,595	66.5%	6
			<b>194,202,151,769</b>	<b>188,913,427,686</b>	<b>97.3%</b>	<b>5,288,724</b>



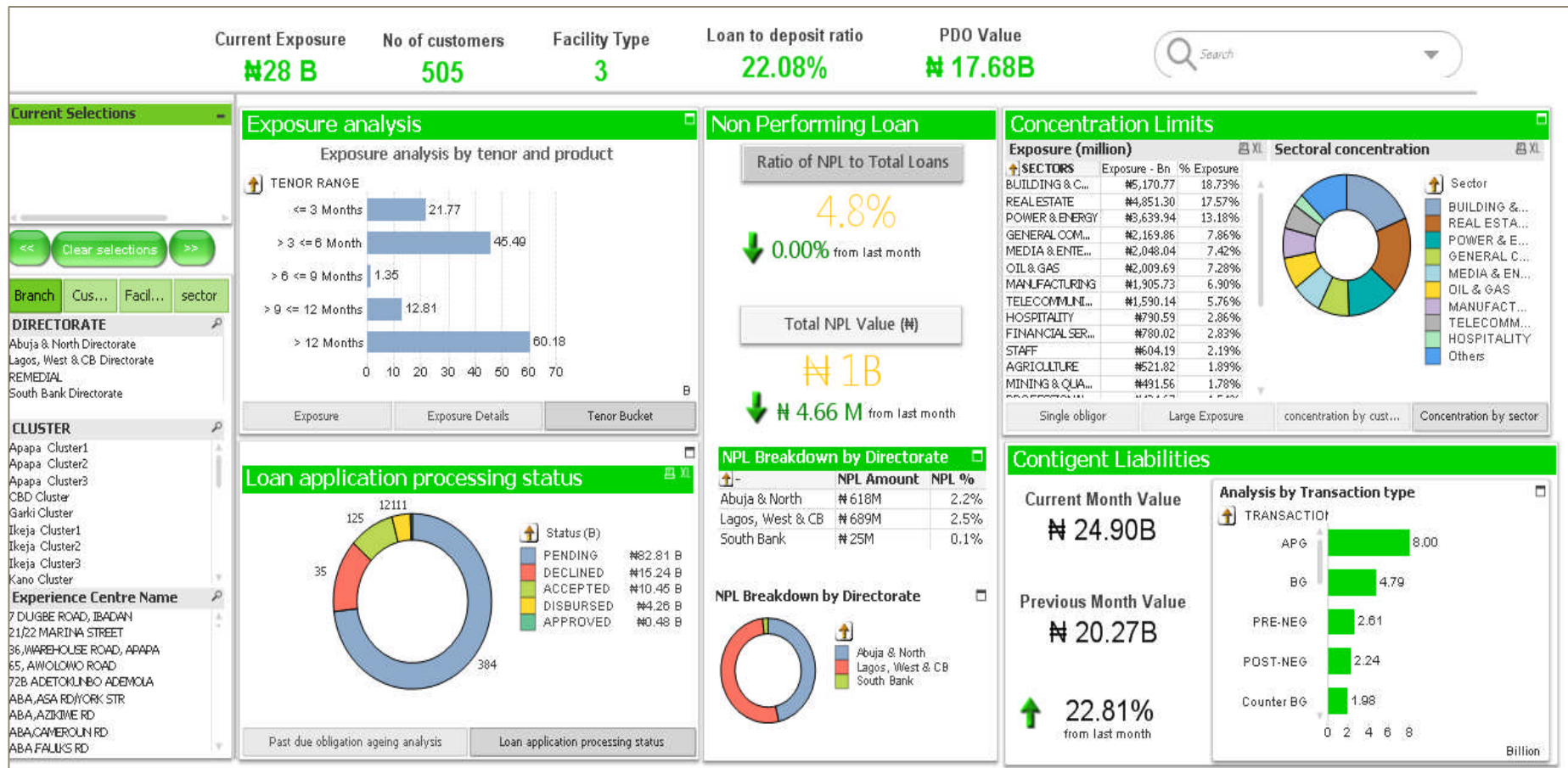
# Data analytics in the internal audit lifecycle

## What good looks like



# Data analytics in the internal audit lifecycle

## What good looks like



# Data analytics in the internal audit lifecycle

## What good looks like

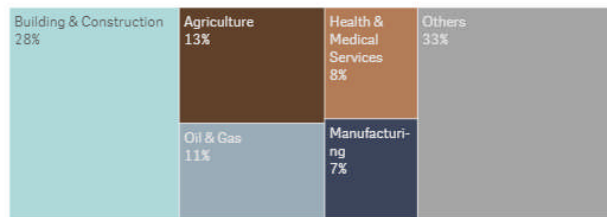
Credit Risk 1 of 3



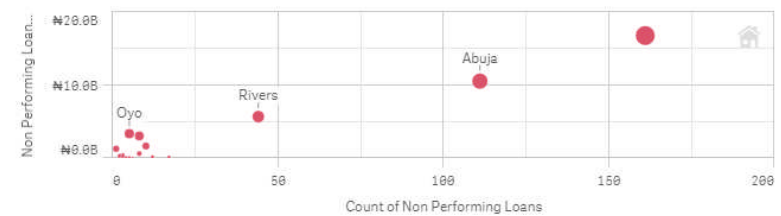
Total Exposure (Naira) **₦129.7B**   
 Naira Exposure **₦115.0B**   
 USD Exposure **\$239.4M**   
 Pound Exposure **£3.9M**   
 Non Performing Loans **₦44.1B**   
 % Non Performing Loans **34%**

- Location
- Loan Officer
- Facility Type
- Tenor
- Sector

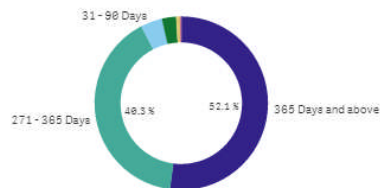
Exposure by Sector



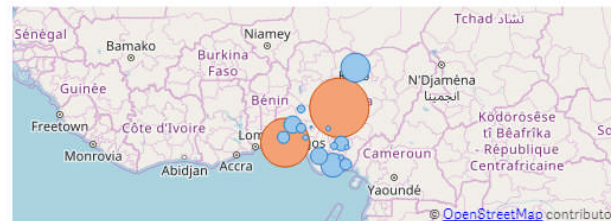
Value & Count of Non Performing Loans by Location



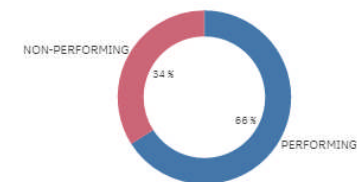
Loan Exposure by Tenor



Loan Exposure by Location



Performing vs Non-Performing Loans



# Data analytics in the internal audit lifecycle

## What good looks like

Credit Risk 2 of 3



Loans Given Below Market Rate

92

Loans Given Below Market Rate

₦16.3B

Loans Given Below Market Rate

16%

Interest Income Forgone

₦0.71B

Total Exposure Exceeding Approval Limit

₦5.8B

Location

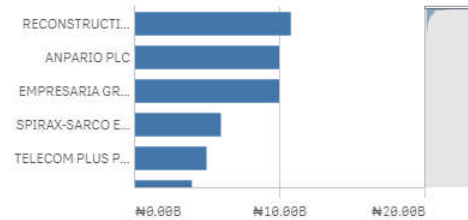
Loan Officer

Facility Type

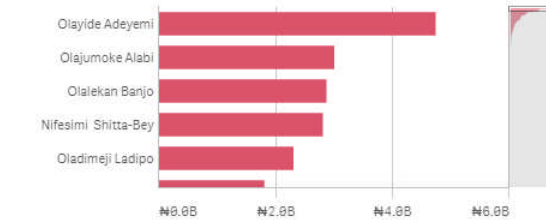
Tenor

Sector

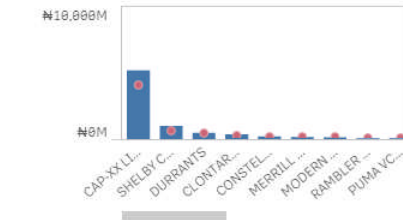
Loan Exposure by Customer



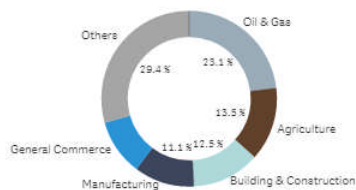
Non performing Loans by Loan Officer



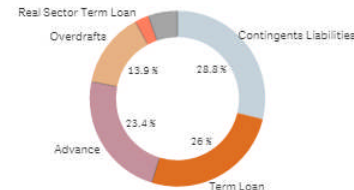
Loan Exceeding Approval Amount



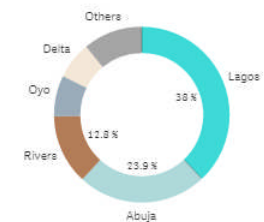
Non Performing Loans by Sector



Non Performing Loans by Facility Type



Non Performing Loans by Location





# Data analytics in the internal audit lifecycle

## What good looks like

Credit Risk 3 of 3



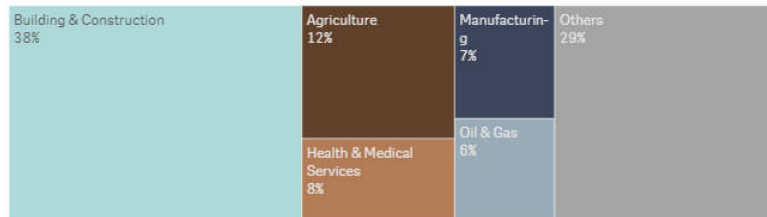
Total Interest Income  
**₦34.56B**

Total Interest Income - Non Performing  
**₦9.70B**

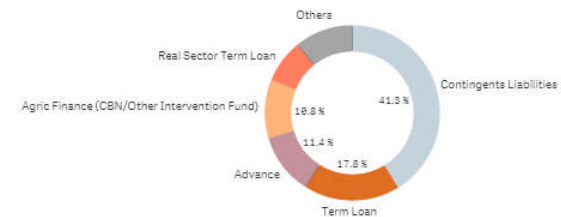
Total Loans - No Collateral  
**₦49.40B**

- Location
- Loan Officer
- Facility Type
- Tenor
- Sector

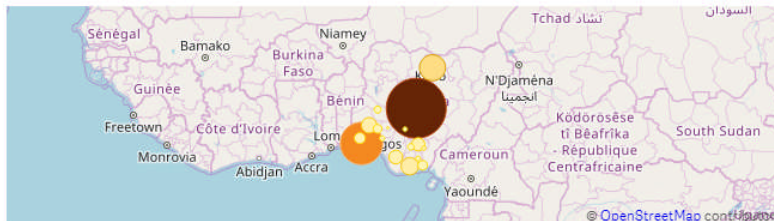
Interest Income by Sector



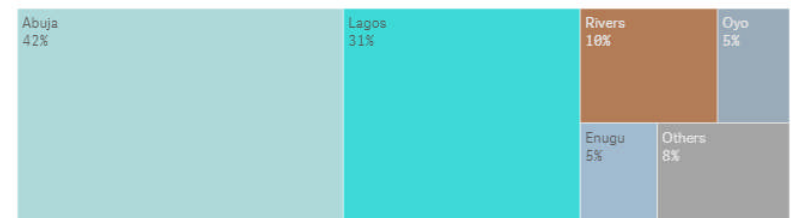
Interest Income by Facility Type



Interest Income by Location



Loan Exposure without Collateral



---

***Thank you.***

***Femi Osinubi***  
***08130588959***

