



AFRICAN DEVELOPMENT BANK GROUP  
GROUPE DE LA BANQUE AFRICAINE  
DE DÉVELOPPEMENT



# Digital Solutions for African Agriculture

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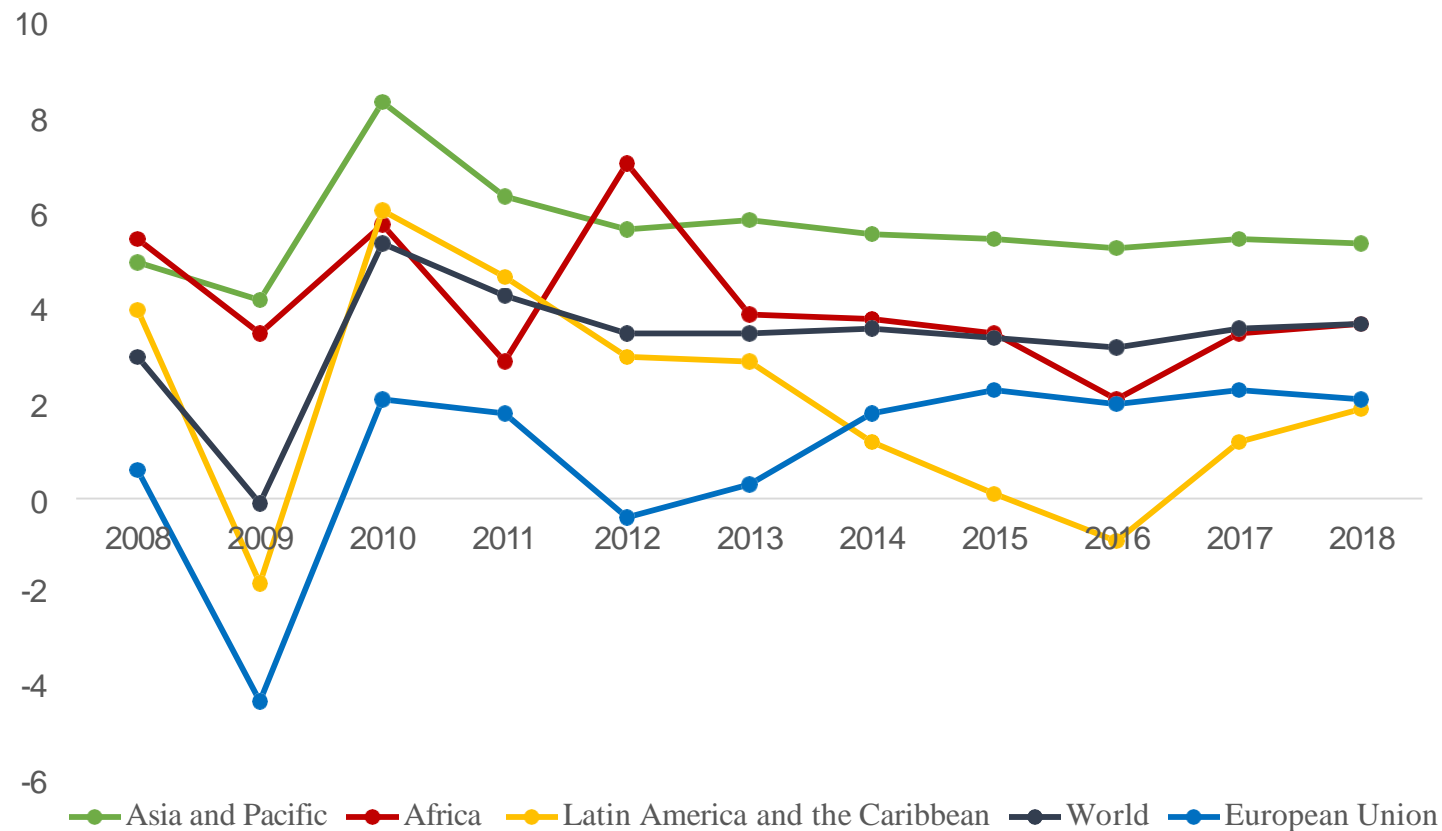
# **I. Introduction**

**Understanding different country and agriculture sector context and common agenda**

**MENTIMETER Question 1**

# A Rising Continent – Sustained Growth

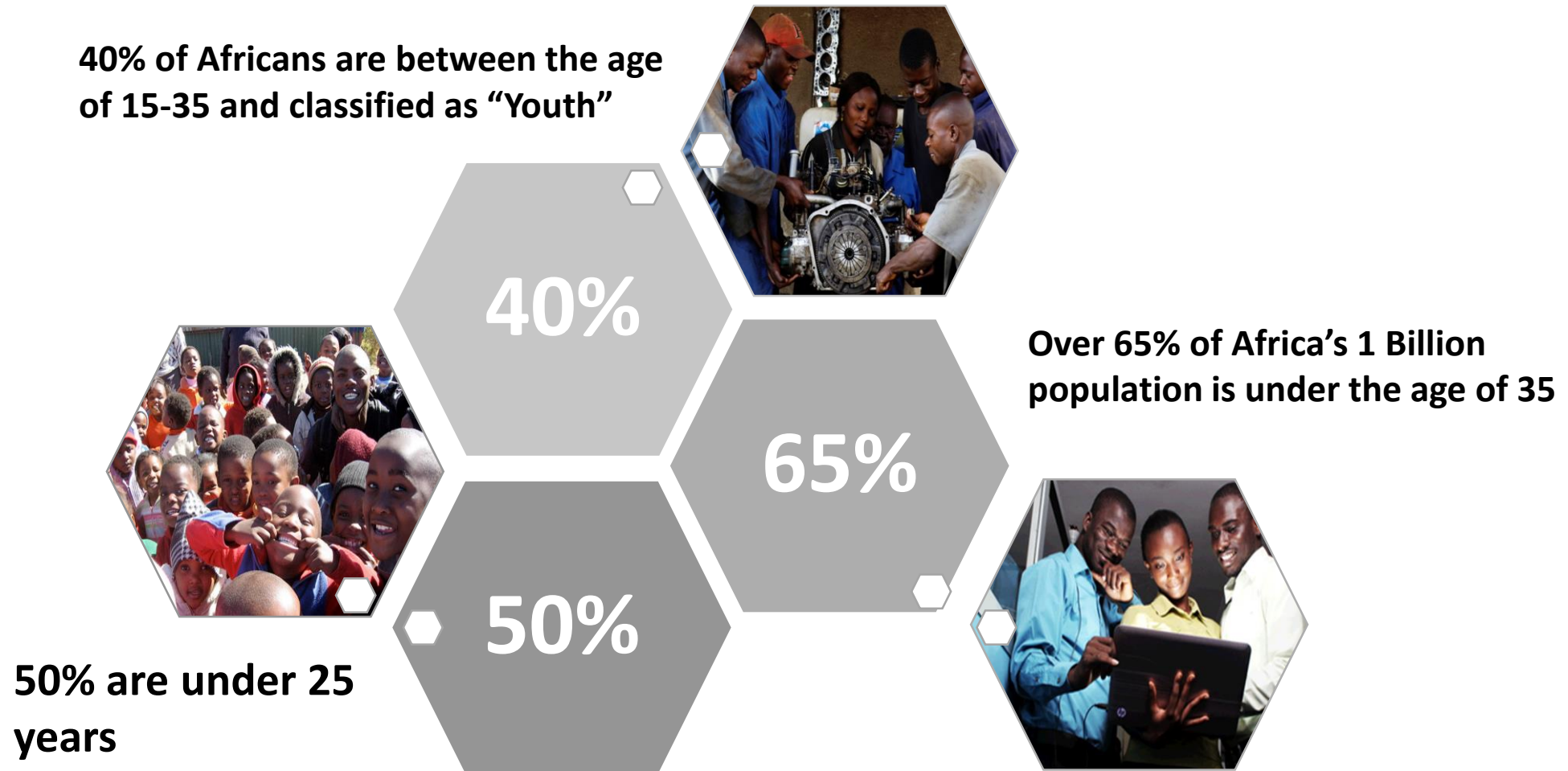
Sustained economic growth in some countries (17 countries with growth rates above 5% in 2017) and sometimes outperforming the rest of the world (7 countries among the 20 world's fastest growing economies)



Source: IMF, WEO, 2017

Rank	Country	Real GDP Growth Rate
1	Macao SAR	13.4
2	Ethiopia	8.5
3	Côte d'Ivoire	7.6
4	Nepal	7.5
5	Myanmar	7.2
6	Bangladesh	7.1
7	Djibouti	7
8	Cambodia	6.9
9	Lao P.D.R.	6.9
10	China, People's Rep. of	6.8
11	Senegal	6.8
12	Guinea	6.7
13	India	6.7
14	Philippines	6.6
16	Tanzania	6.5
17	Turkmenistan	6.5
19	Burkina Faso	6.4
20	Vietnam	6.3

# Demographic Dividend of a Young Continent

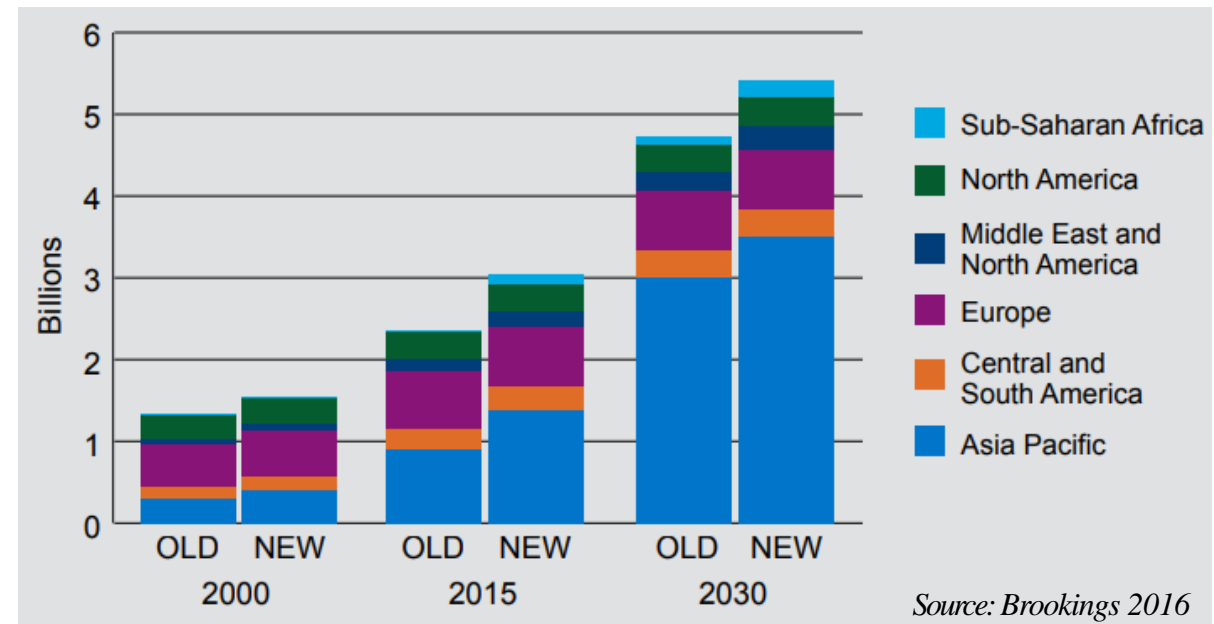
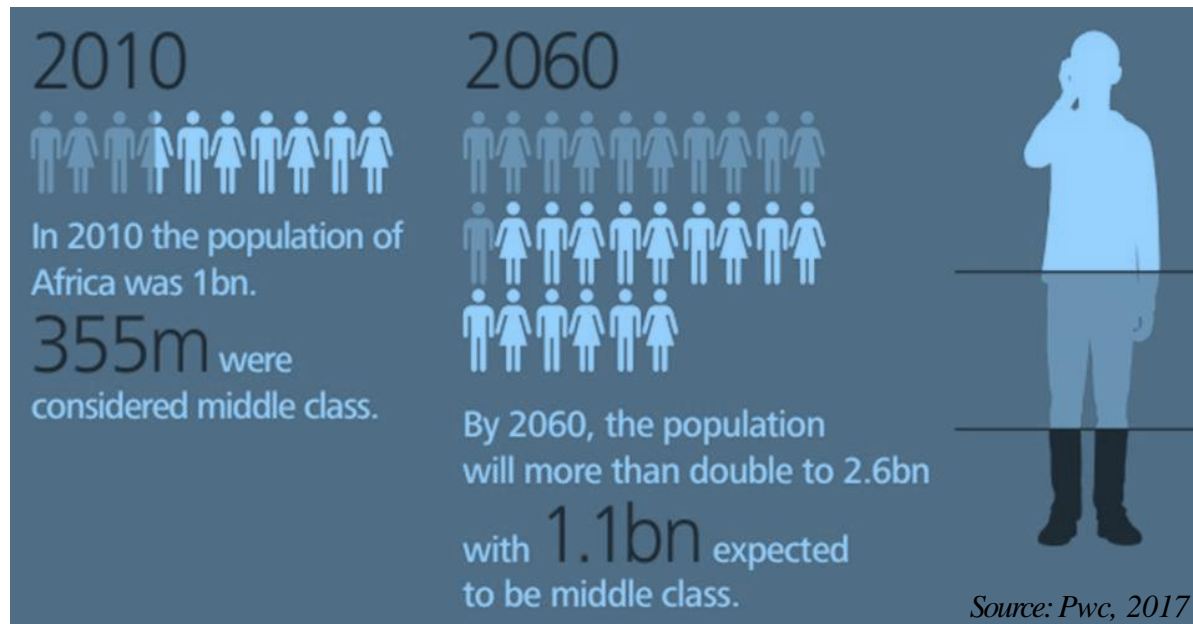


**By 2050 there will be close to 2 billion youth**

**In the meantime, labor force in other parts of the world will decline**

# The Rise of the Middle Class

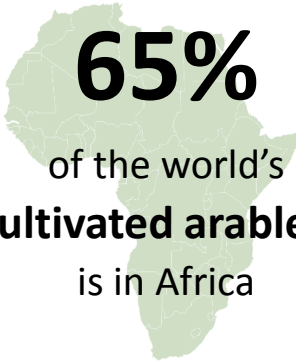
- Average income increased by about 30% over the past 10 years (as compared to 20% of decrease between 1980 and 2000)
- By 2060, 43% of Africans will belong to the middle or upper classes, implying considerably higher demand for goods and services



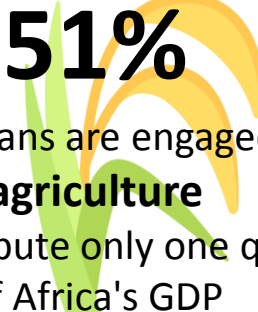
# Agriculture in Africa – An Untapped Market

## STATE OF AGRICULTURE IN AFRICA

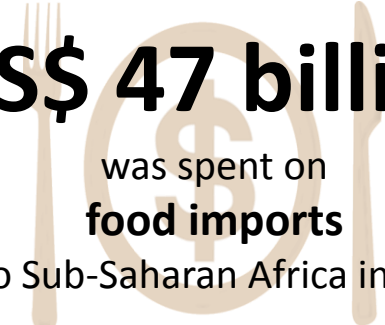
**65%**  
of the world's  
**uncultivated arable land**  
is in Africa



**51%**  
of Africans are engaged in  
**agriculture**  
but contribute only one quarter  
of Africa's GDP



**US\$ 47 billion**  
was spent on  
**food imports**  
into Sub-Saharan Africa in 2017



## MEGATRENDS

### POPULATION GROWTH & EXPANDING MIDDLE CLASS



### URBANIZATION & TECHNOLOGICAL CHANGES



### EVOLVING DIETARY PREFERENCES



## IMPACT BY 2050

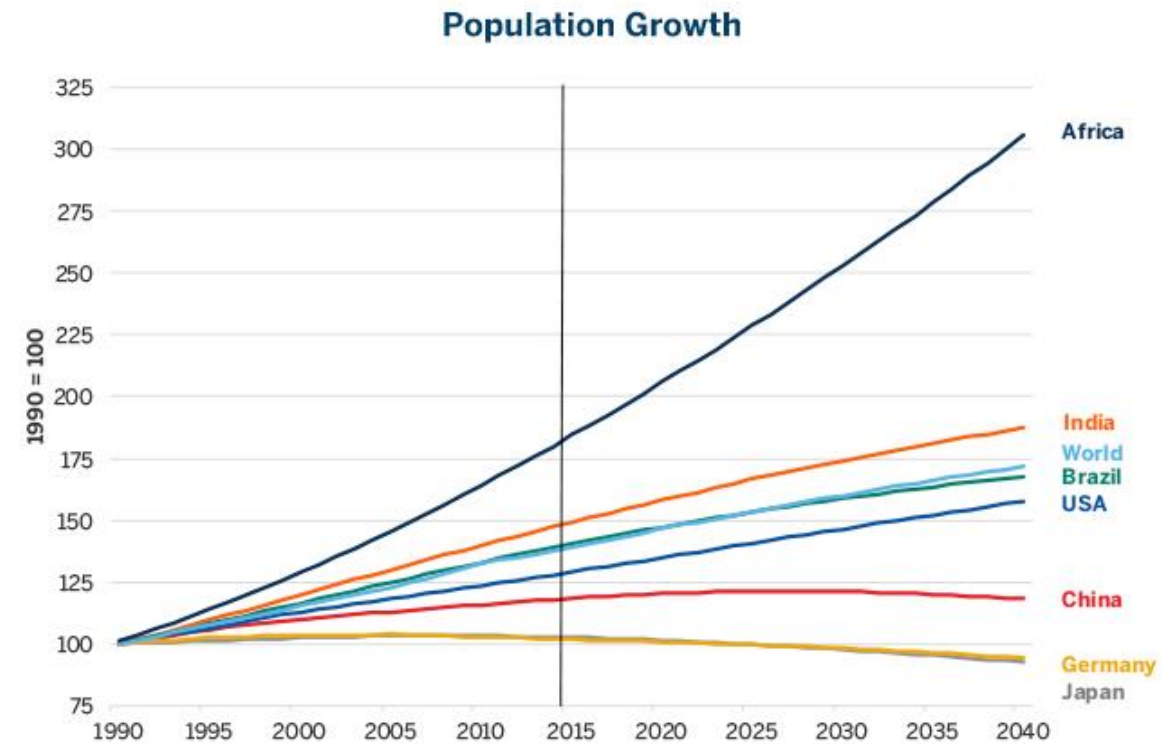
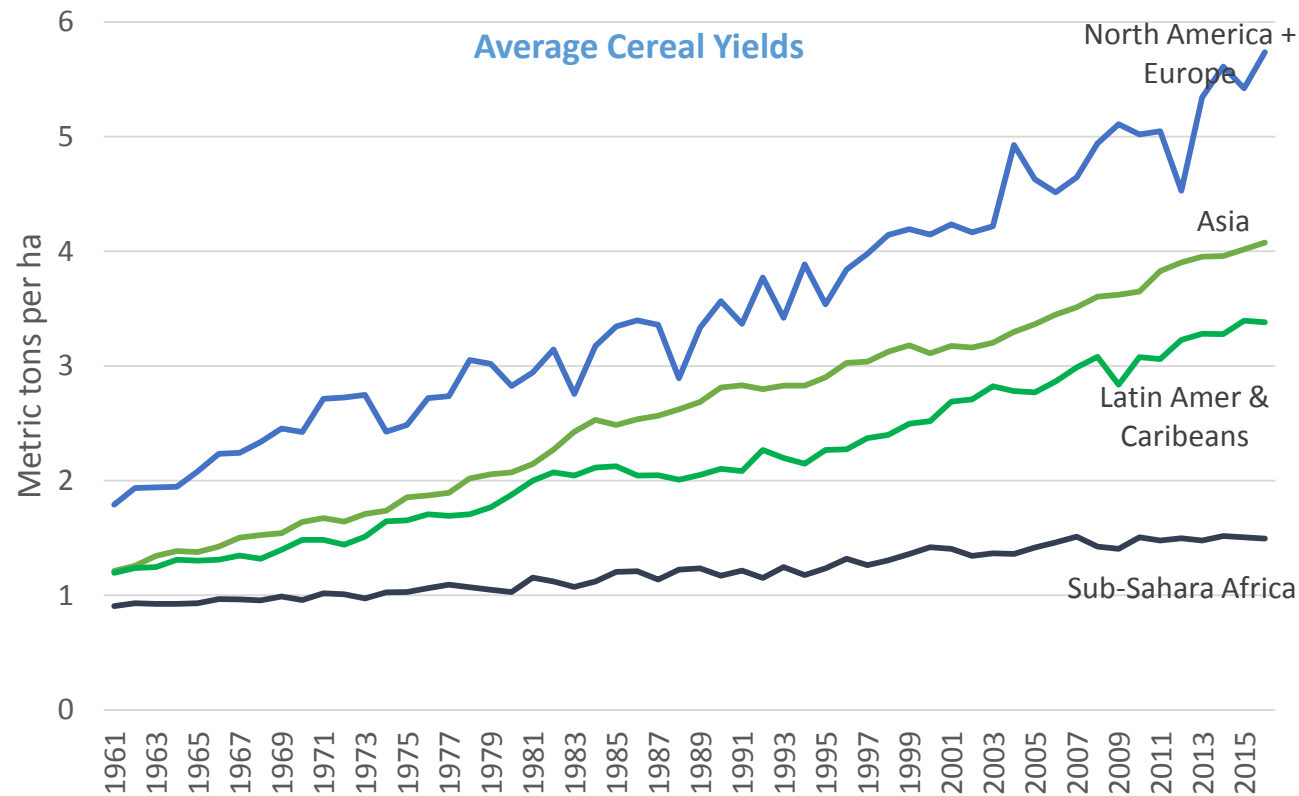
**2.5 billion**  
people living in Africa

**over 60%**  
increase in Africa's food  
demand

By 2030, African food  
market will be worth  
**US\$ 1 trillion**

# Challenges in the Agriculture Value Chain

To sustainably feed a growing population, Africa must close the yield gap and build a robust agribusiness sector



# Challenges in the Agriculture Value Chain (Cont'd)

## Agriculture Value Chain

### Input Supply

### On Farm Production

### Post Harvest & Agro-processing

### Marketing & Consumption

## Challenges

- Fragmented demand for inputs
- Lack of credit for farmers and agro-dealers
- Government crowding out private sector

- Insufficient reach of extension services
- Lack of information on climate data, input needs, etc.
- Lack of access to finance and markets
- Land fragmentation, degraded soils

- High post harvest losses
- Insufficient storage facilities
- Inconsistency in quality of produce
- Poor processing & handling techniques

- Lack of technical knowhow to access markets
- Lack of information on product origin & farmer practices
- Almost non-existent tracking systems

## **II. African Development Bank - FEED AFRICA**

# AFDB's "High 5" Priorities

The High  
Le Top



for transforming Africa  
pour transformer  
l'Afrique



1. Power and Light Up Africa



2. Feed Africa



3. Industrialize Africa



4. Integrate Africa



5. Improve Quality of Life of Africans

# The “Feed Africa” Strategy

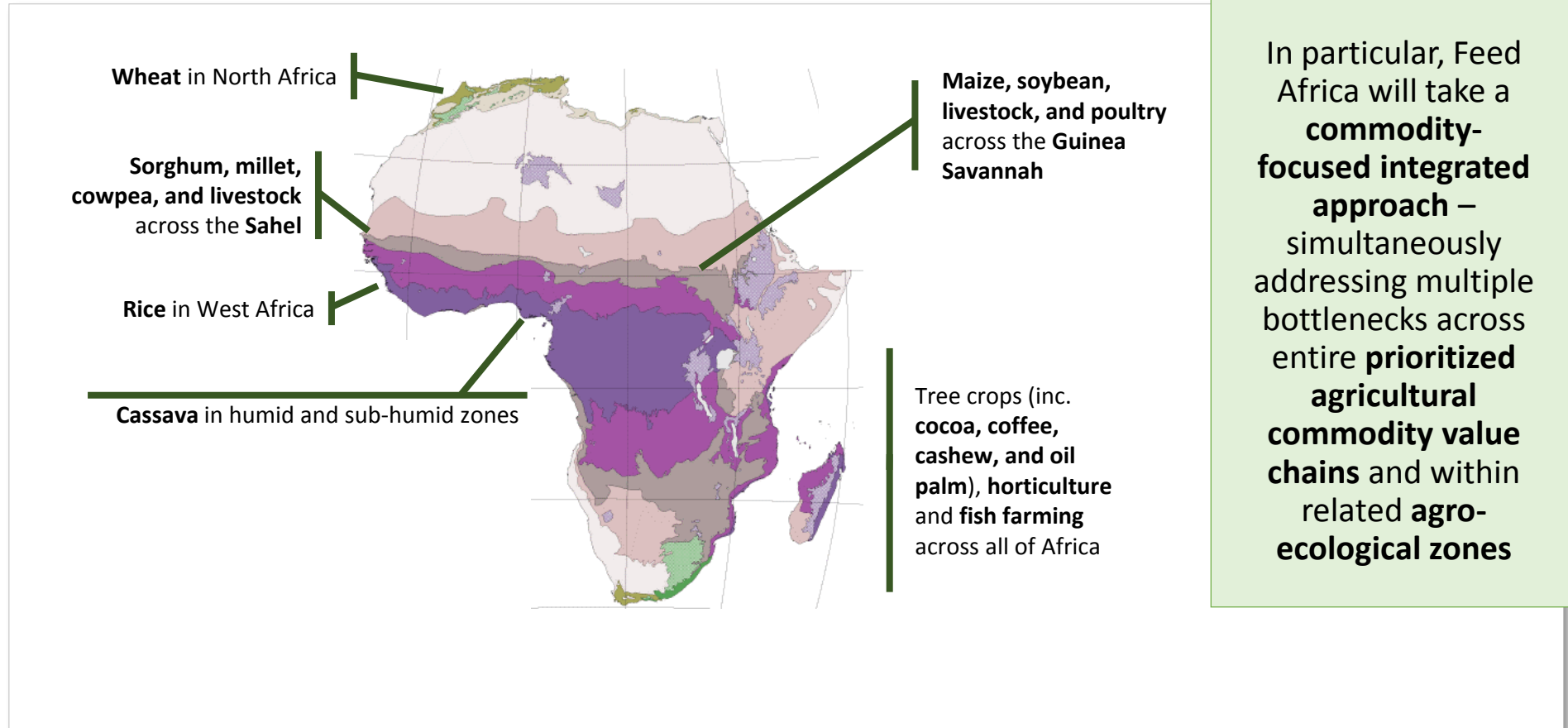
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Feed Africa Vision: To transform African agriculture into a **competitive and inclusive agribusiness sector** that creates wealth, improves lives and secures the environment.



# A Focused Approach on Integrated Commodity Value Chains

The Bank and its partners will pursue an agenda to transform a selection of key agricultural commodities and agro-ecological zones



Agricultural commodity value chains and agro-ecological zones targeted by the Feed Africa

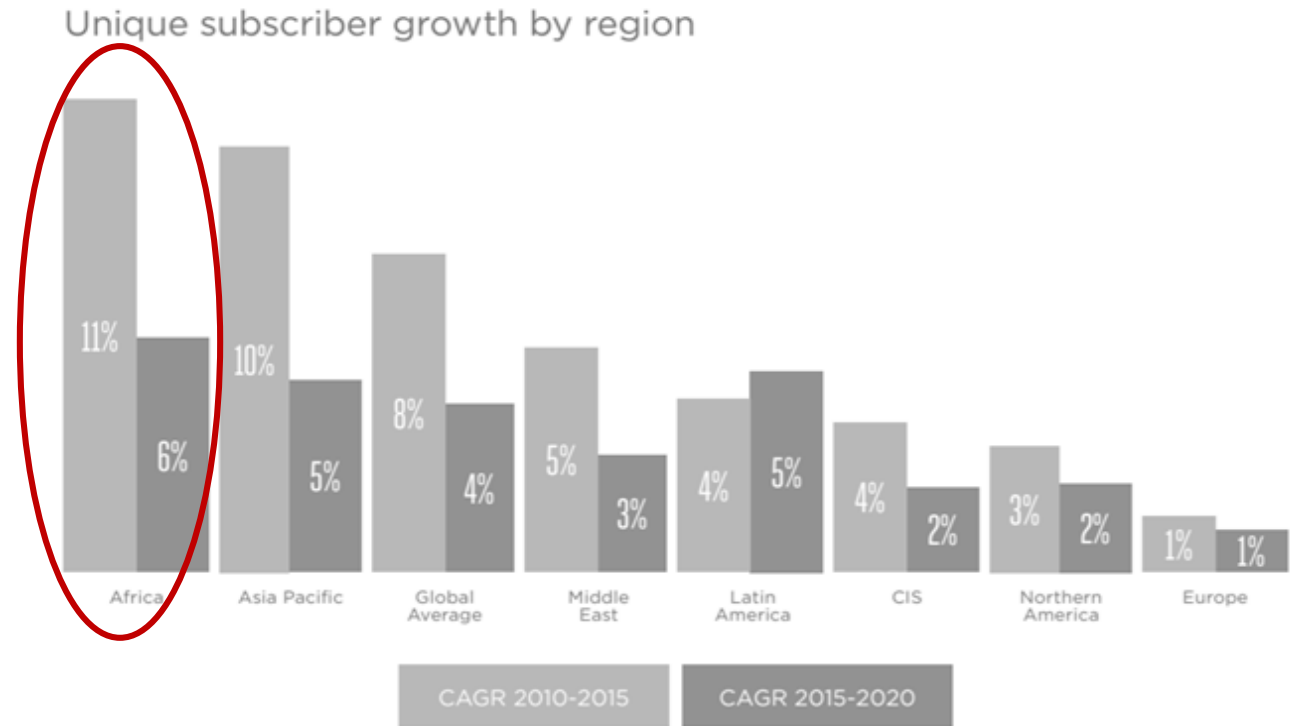
### III. Introducing Digitalization's Rise in Africa



# THE RISE OF DIGITIZATION IN AFRICA

The entry point for digitization in Africa has been through the telecommunications sector and the rise in **increasing internet connectivity** and **mobile phone uptake** over the last decade

## Unique mobile subscribers in Africa

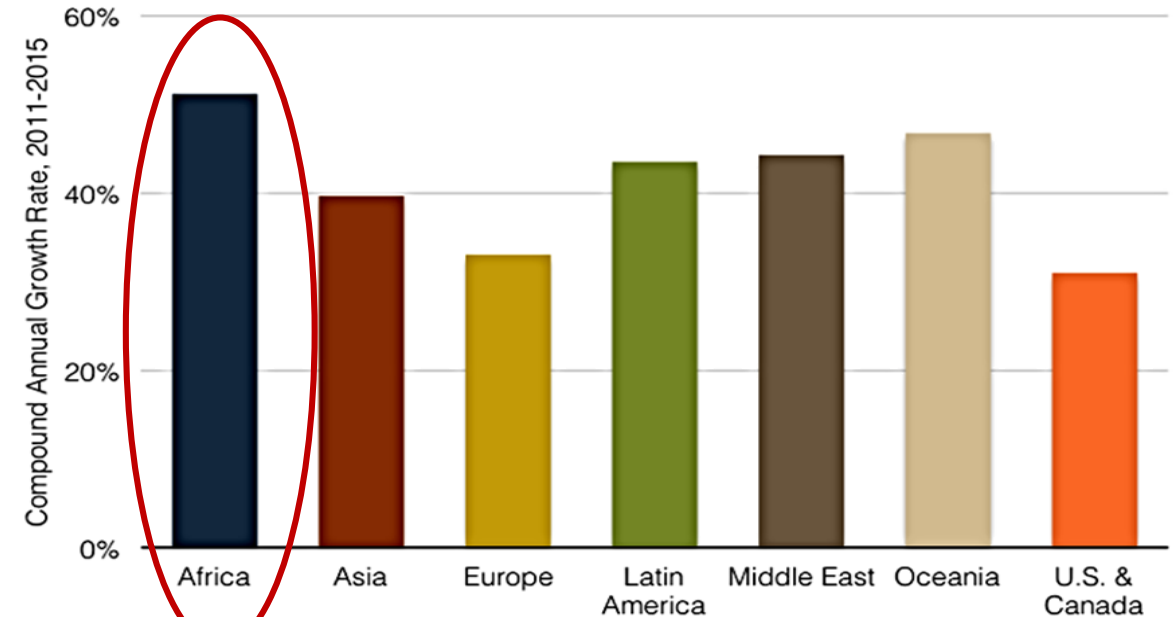


**Between 2010 – 2015, Africa had the fastest growth of mobile phone subscribers**

# THE RISE OF DIGITIZATION IN AFRICA (CONT'D)

**300 million**

additional people to come online by  
**2025**



International internet bandwidth growth by region, 2011-2015 - TeleGeography

**Internet connection in Africa outpaced the rest of world  
from 2011 - 2015**

## FACTORS BEHIND THE TREND

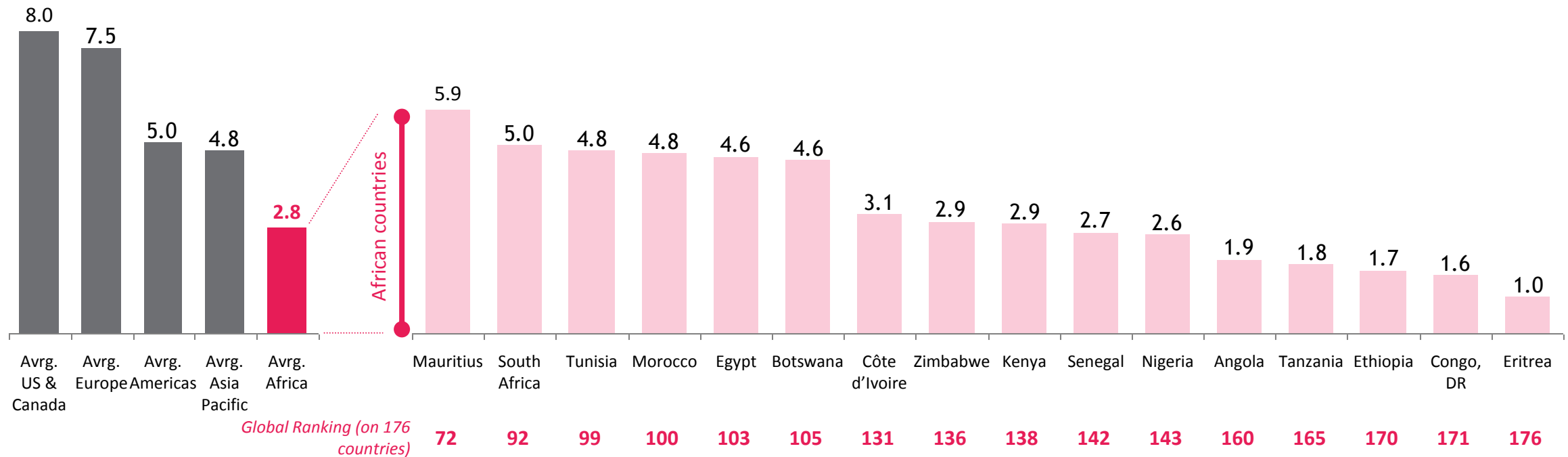
Scarce diffusion on fixed line networks

Entry of key international mobile service providers

Increasing affordability of new devices and a growing market for second-hand devices

# Though Africa remains weak on ICT performance compared to rest of world...

ICT Development Index by world regions and African countries (from highest score 8.9 to lowest score 1.0)



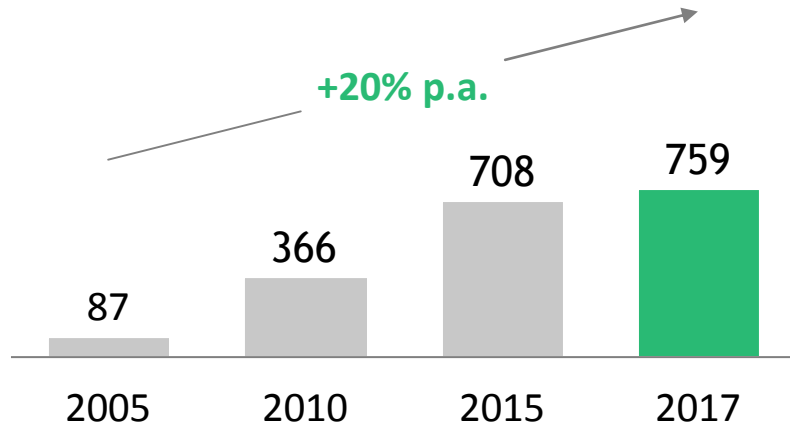
ICT Development Index combines 11 indicators in three categories



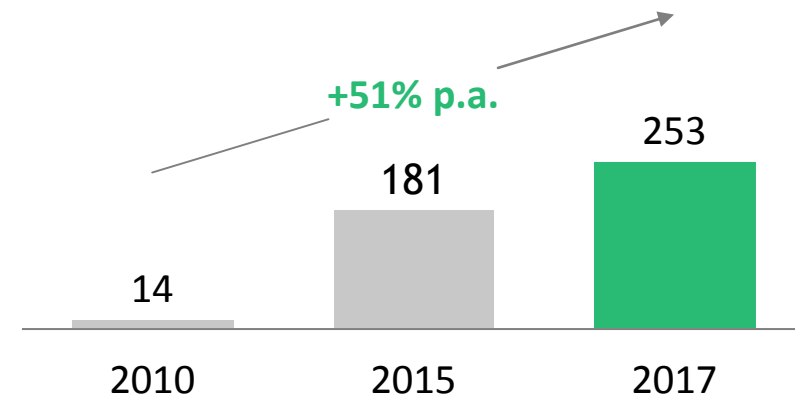
- ICT access (e.g. fixed telephone & cellular subscriptions)
- ICT use (e.g. % of individuals using internet)
- ICT skills (e.g. tertiary gross development ratio)

# ...ICT adoption is booming in Africa....

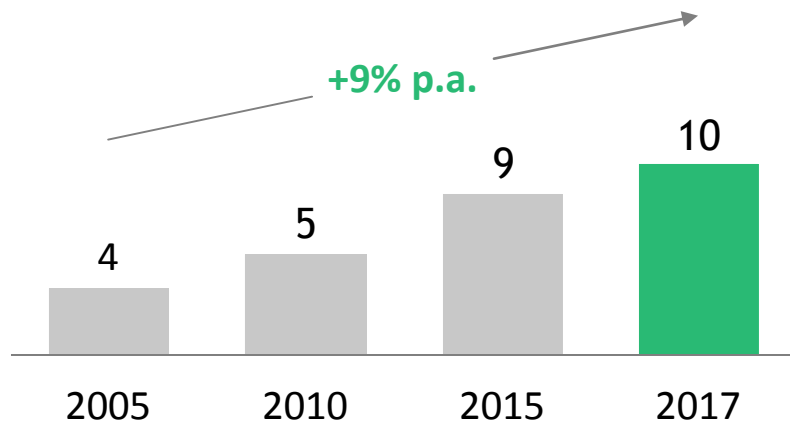
Mobile-cellular telephone subscriptions (M)



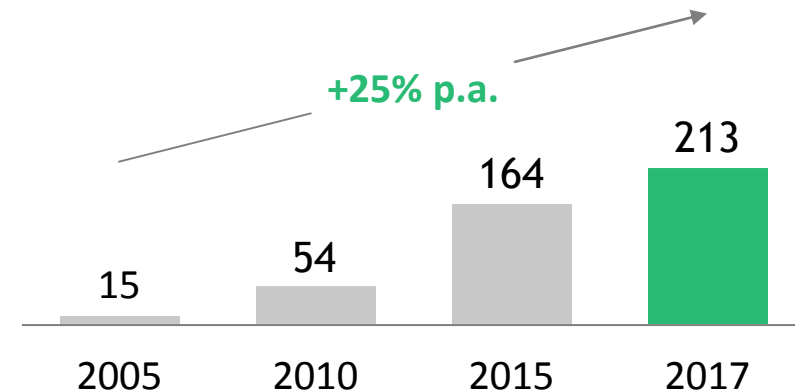
Active mobile-broadband subscriptions (M)



Households with a computer (%)



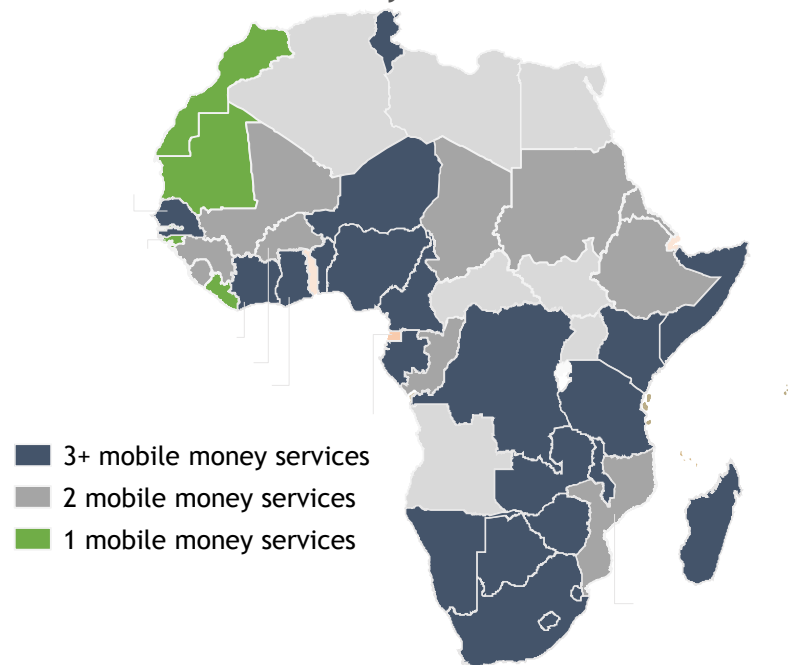
Individuals using the Internet (M)



# ....and is already moving fast in some service sectors, such as mobile money – MENTI QUESTION 2

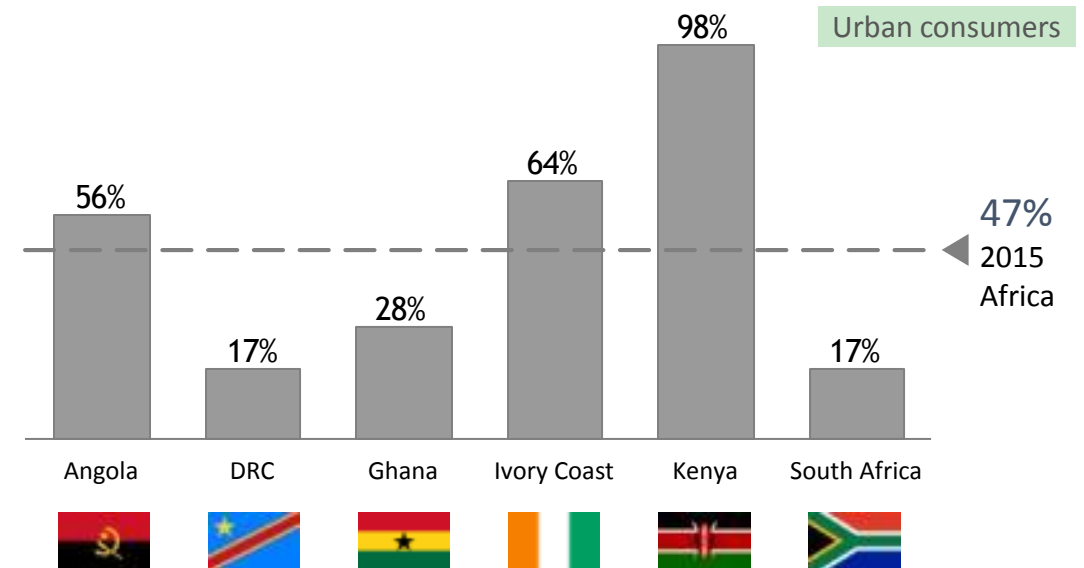
Mobile money services are developing quickly on the continent...

Number of live mobile money services



... and are already well adopted

Percent of respondents who have a mobile money account  
Africa Consumer Sentiment Survey 2015

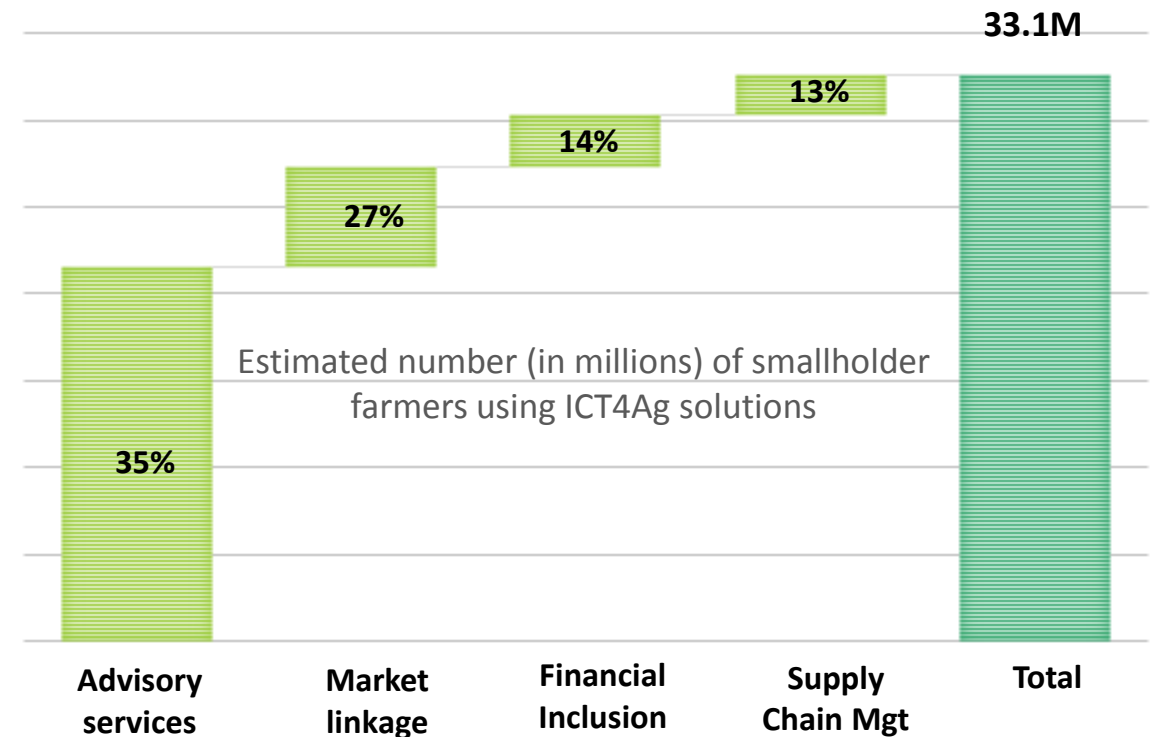
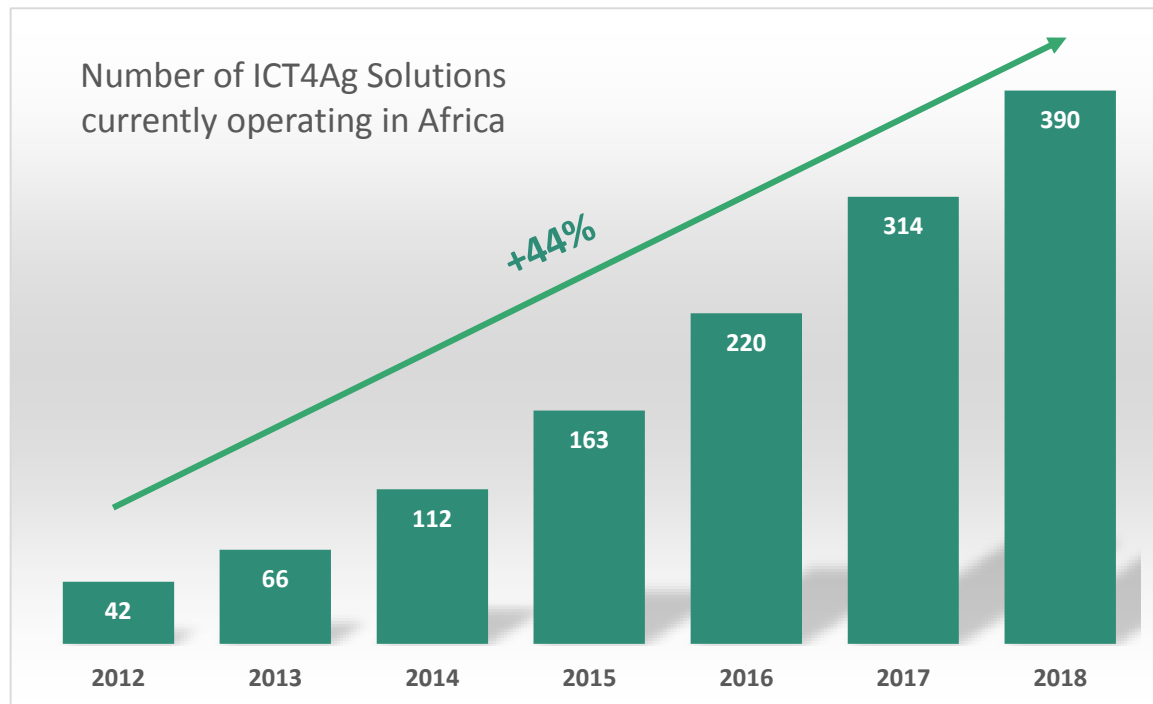


Source: Sagaci Research 2015, BCG Africa Consumer Sentiment survey February to April 2015 GSMA  
Note: Survey reached 11,127 total consumers., of which 8,977 were lived in urban areas.

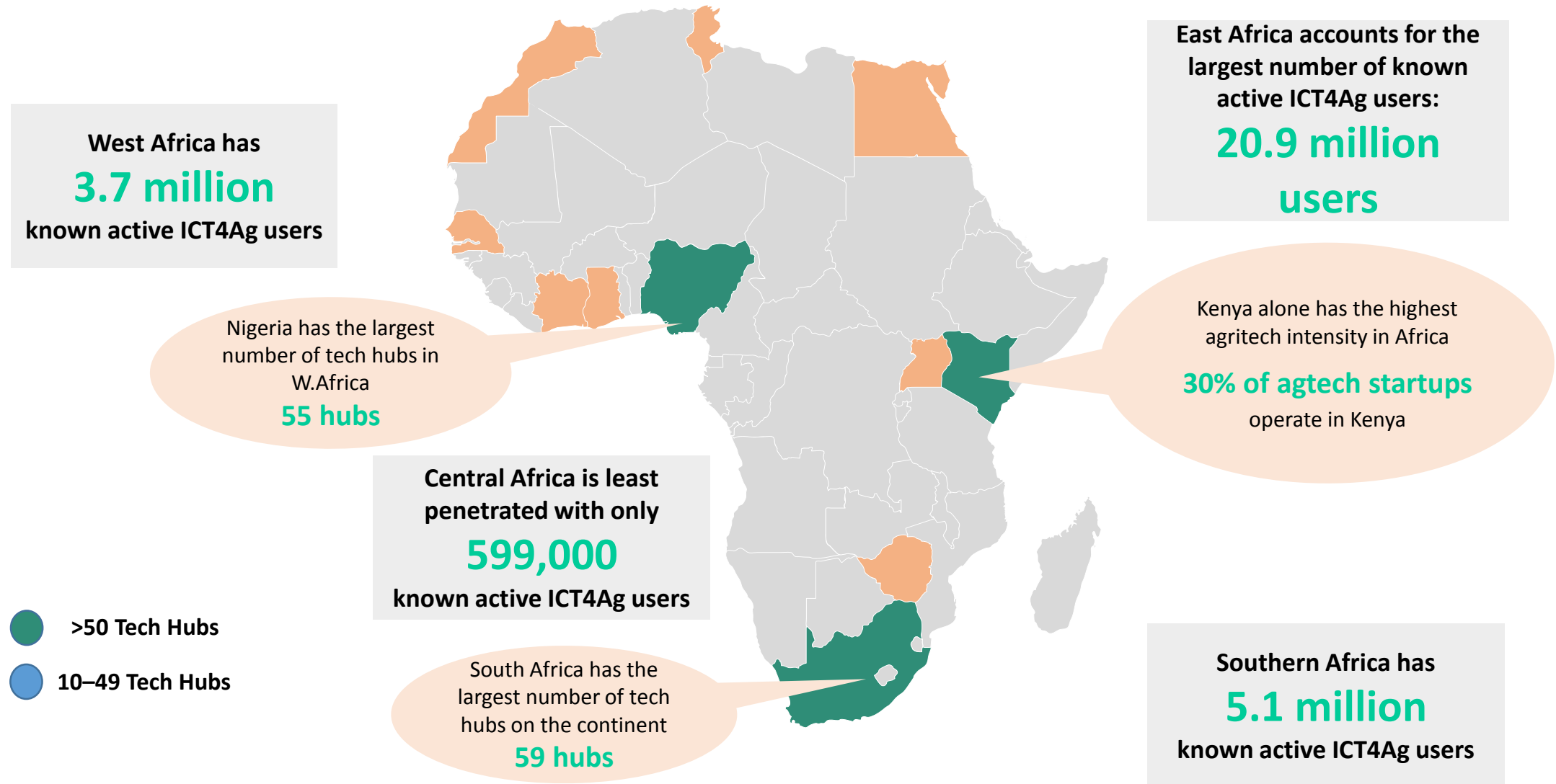
# AFRICA'S DIGITAL AGRICULTURE LANDSCAPE

ICT outreach and technological innovation is on the rise

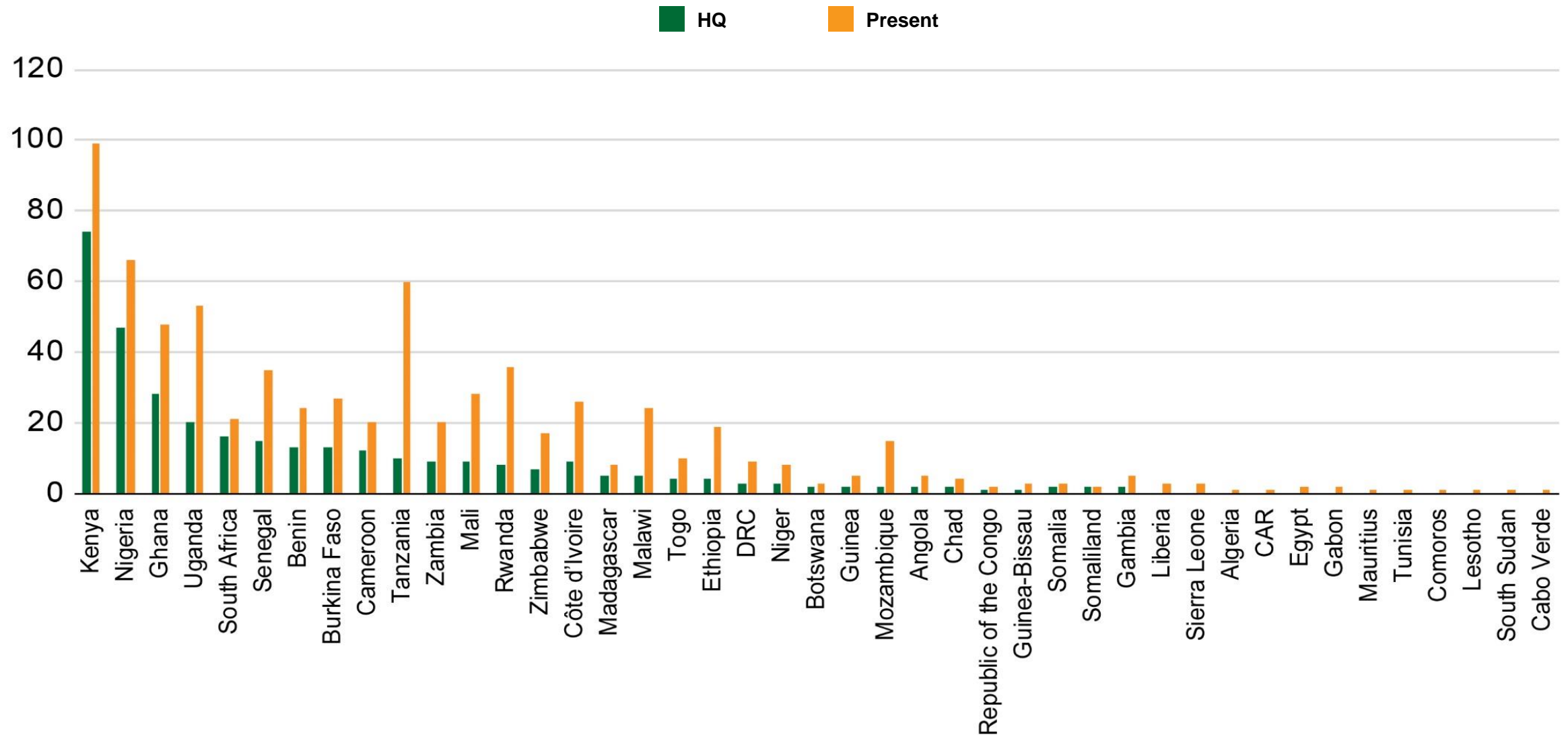
As at 2018, there are at least **390 ICT and digital solutions** actively operating in the African agriculture space  
Reaching an estimated **33.1 million smallholder farmers**



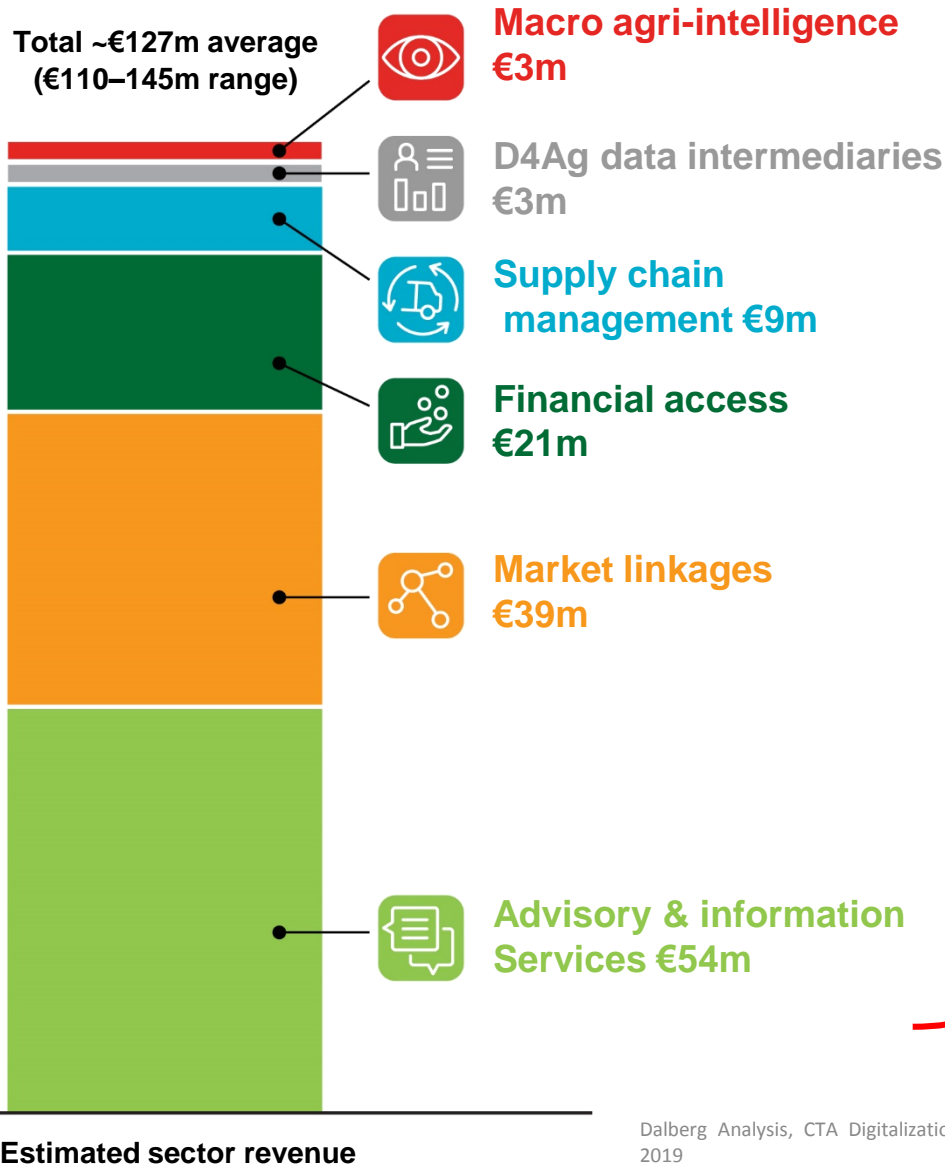
# UPTAKE OF DIGITAL AG SOLUTIONS



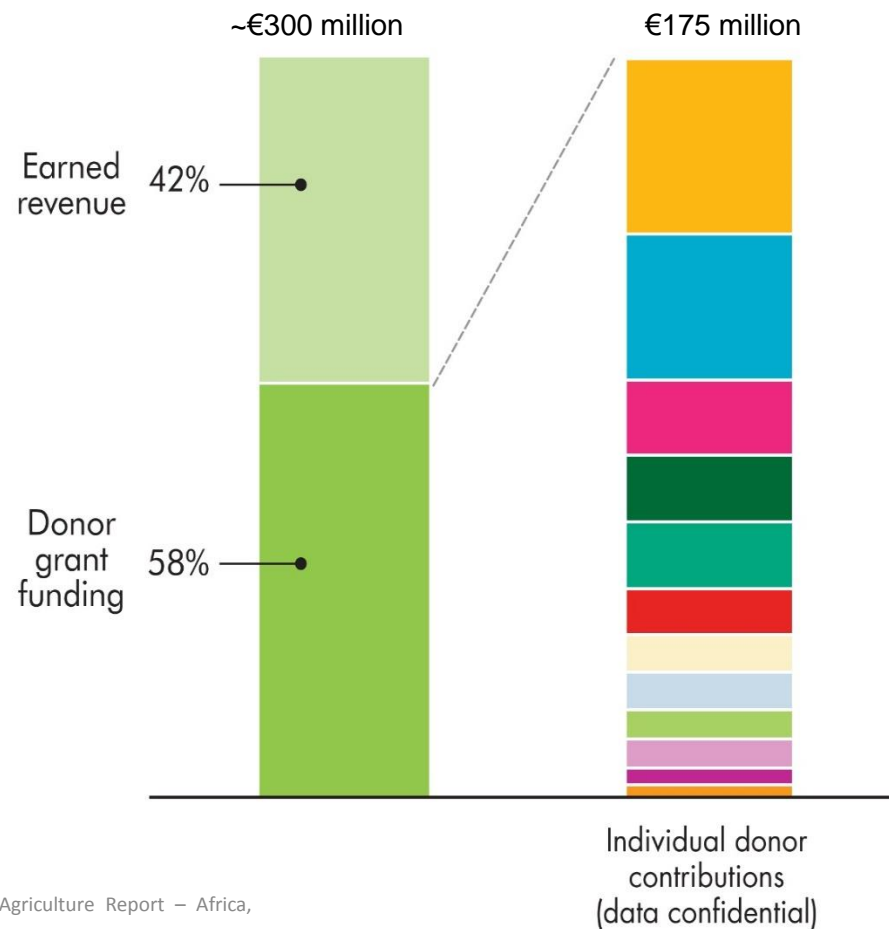
# COUNTRIES WHERE AGTECH SOLUTIONS ARE CREATED



# FUNDING SOURCES FROM AGTECH AND REVENUES



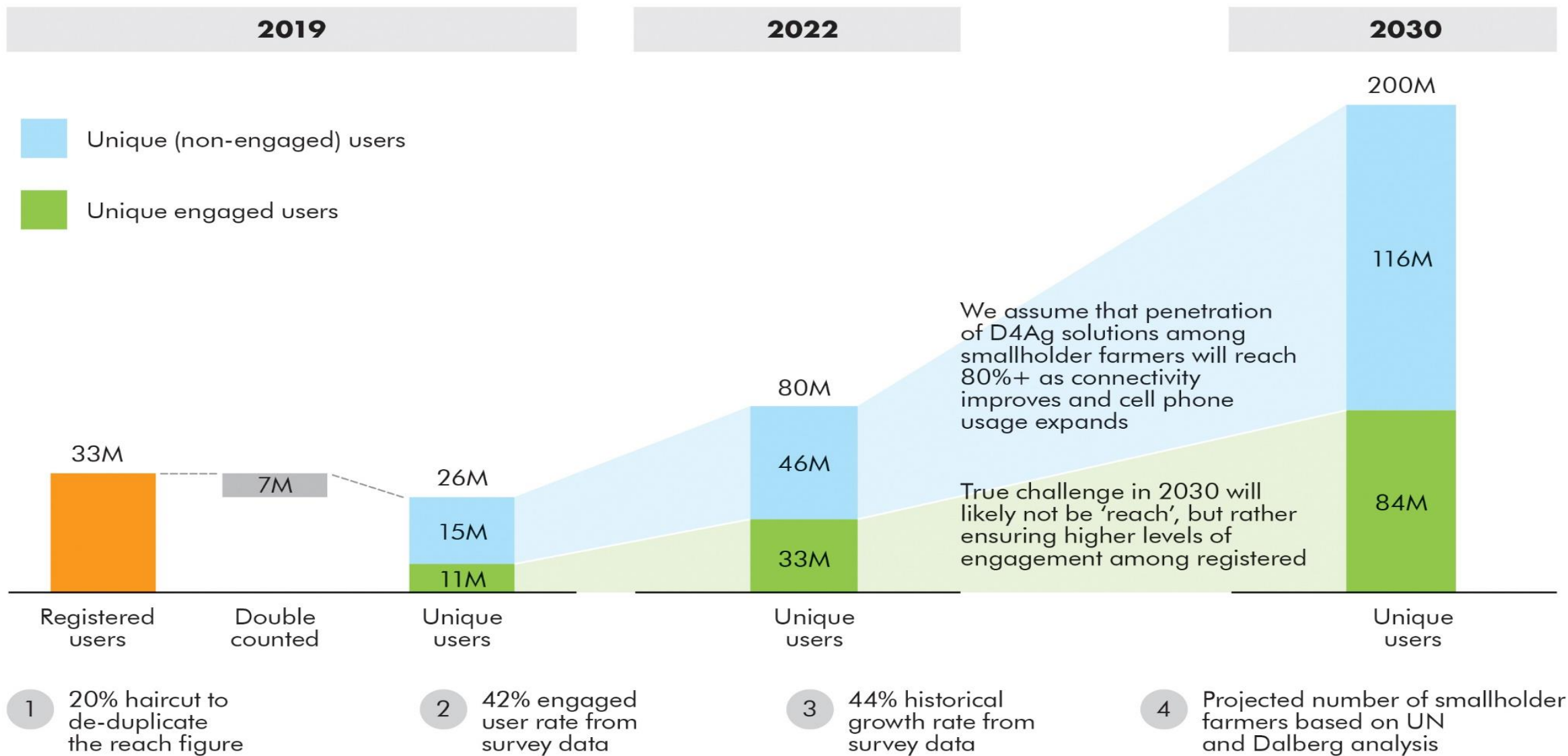
**Estimated annual Sub-Saharan Africa D4Ag funding, 2018**  
€ millions, Sub-Saharan Africa, 2018



## Top global D4Ag funders



# PROJECTED UNIQUE AND ACTIVE USERS

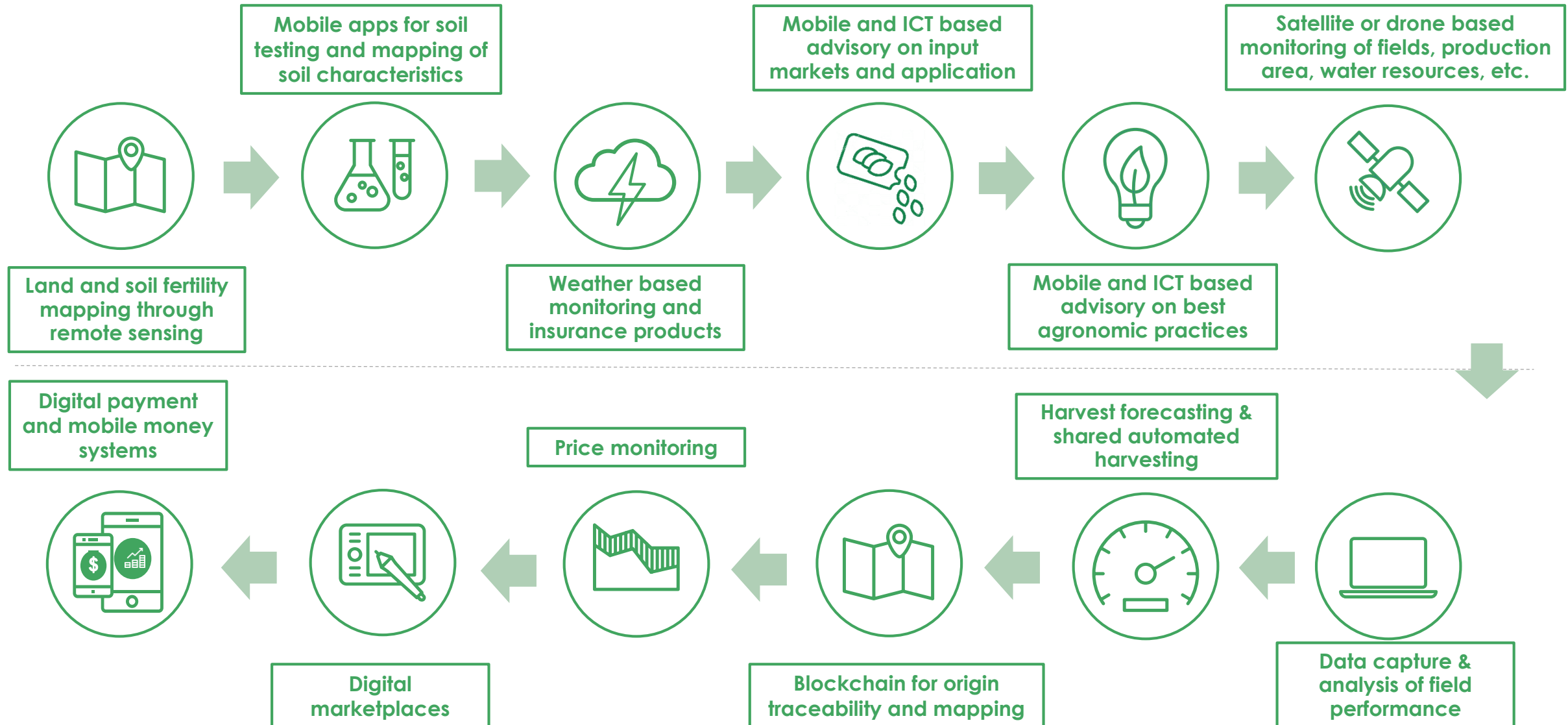




## **IV. Business models for diffusion & transfer**

# OPPORTUNITIES FOR TRANSFORMATION

DIGITAL AND TECHNOLOGICAL INNOVATIONS CAN ADDRESS THESE CHALLENGES  
AND LEAPFROG TRANSFORMATION OF AFRICAN AGRICULTURE



# Pioneering Digital Solutions in Africa

Mobile money and e-wallets transform the business of agriculture



KENYA

**48.76%** of Kenya's GDP processed over M-PESA.

**US\$32.5 billion**, the value of M-PESA transactions.

**93%** of Kenyans have access to mobile payments.

M-PESA offers payment solutions for agricultural services but also further services such as international transfers, loans and health provision.



**14.5 million** farmers registered under the Growth Enhancement Support Scheme (GESS).

Farmers achieved a **157%** increase in income – from US\$700 to US\$ 1,800.

Nigeria liberalized input distribution through an e-wallet system – the Growth Enhancement Support Scheme (GESS)

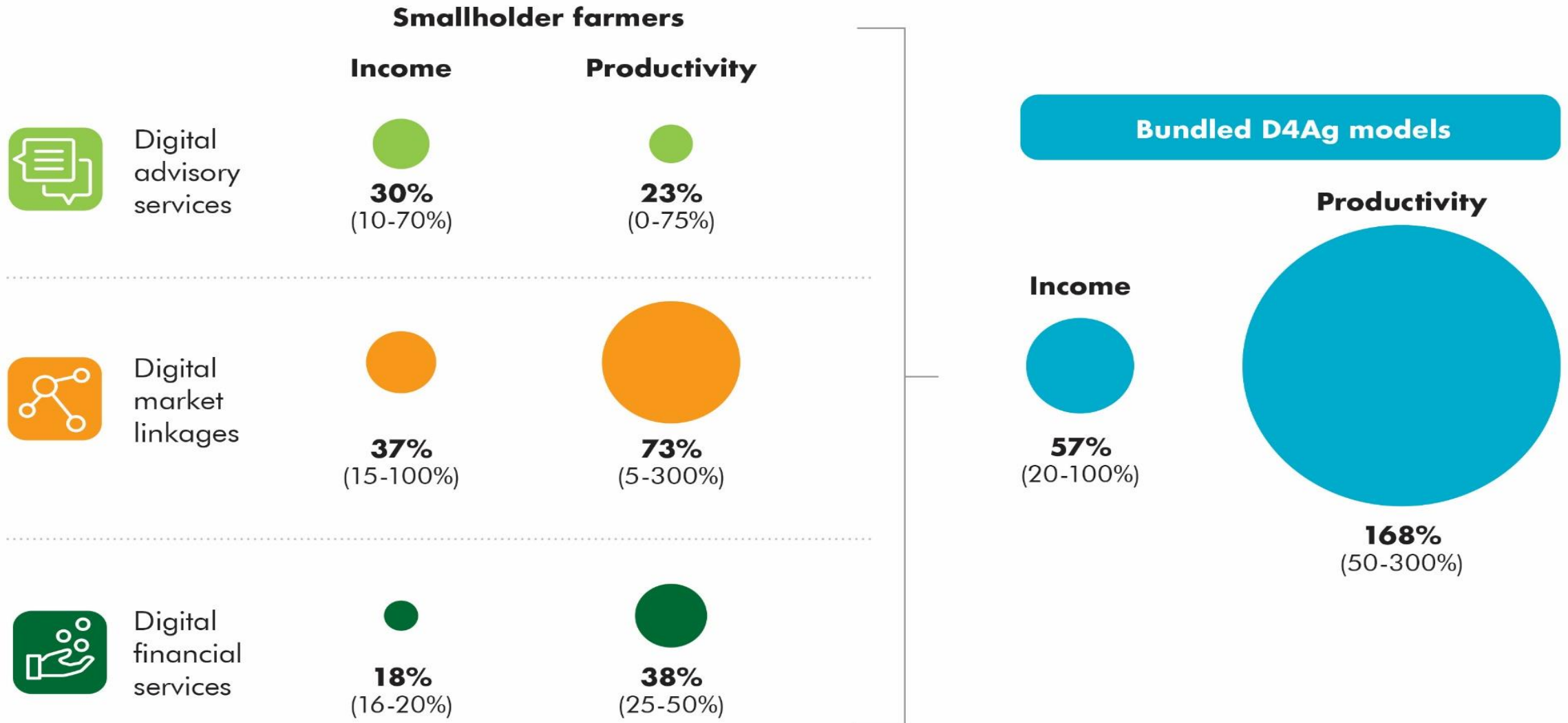


NIGERIA



# IMPACT DATA SUGGESTS POWER OF BUNDLING –

## MENTI Question 3

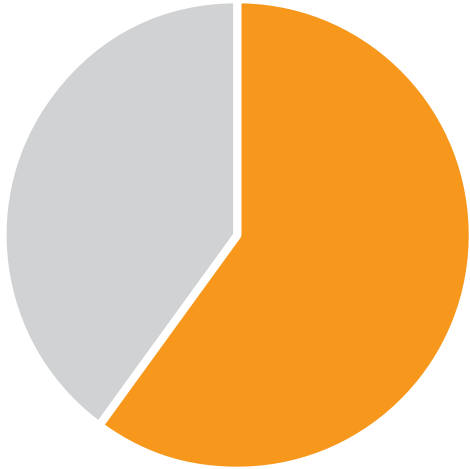


## V. Training to use new technology



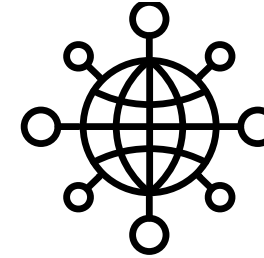
# USE OF ADVANCED TECHNOLOGIES

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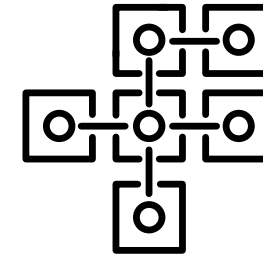


60%

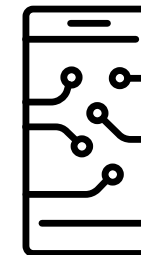
of respondents expect to integrate new technologies over the next three years, the most popular of which are IoT, blockchains and machine learning.



IoT



blockchains

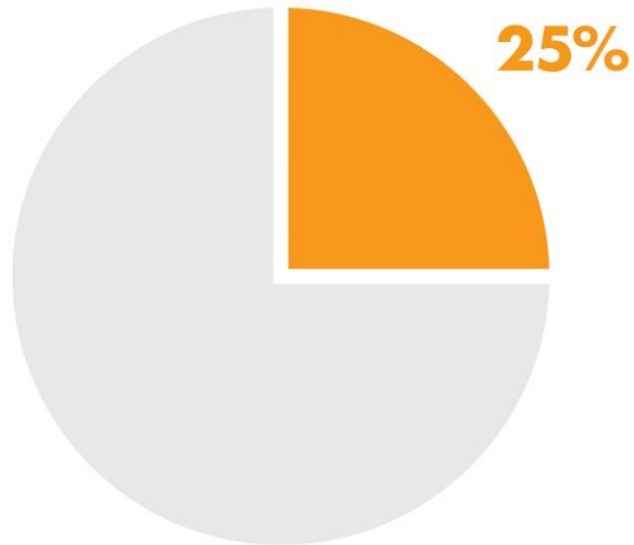


machine learning

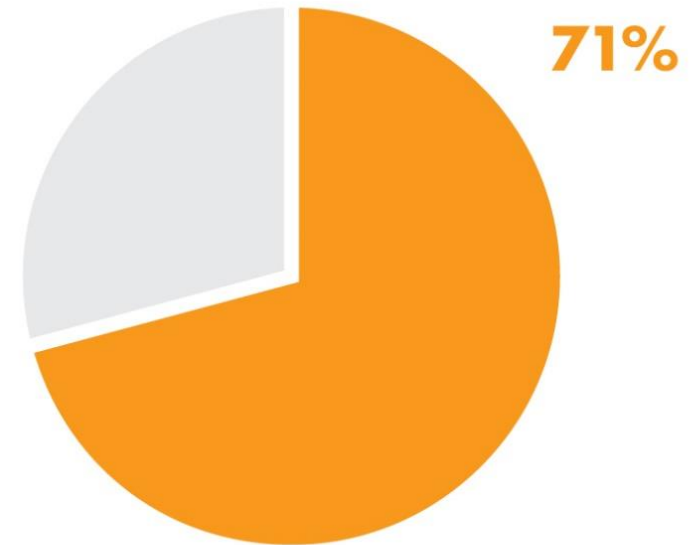
# CURRENT SHARE OF USERS - WOMEN AND YOUTH

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**Women**



**Youth**  
(under 35)\*



**Creates an opportunity for entrepreneurship**

## SPECIFIC INVESTMENTS NEEDED

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- **Develop human capital:** digital literacy across the agriculture ecosystem
- **Support the development of sustainable business models:** push B2B rather than B2C; support research on innovative business models
- **Focus on impact:** leverage youth and women capital to drive entrepreneurship and wealth creation
- **Invest in the missing middle infrastructure**
- **Strengthen enabling environment:** policies and governance of the digital economy
- **Drive a knowledge agenda:** Develop set of best practices and stronger community of practice

## **VI. Challenges and RESPONSES**

# Digital Solutions for African Agriculture









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- Our goal is to increase investments in digital enablers across agriculture value chains in Africa.
- It will be achieved by
  - ✓ Informing and optimizing decision-making processes
  - ✓ Unlocking finances for value chain actors
  - ✓ Creating opportunities for Tech agripreneurs
- The Bank has launched a dedicated Flagship to drive Africa's digital agriculture in support of the Feed Africa Strategy: **Digital Agriculture**



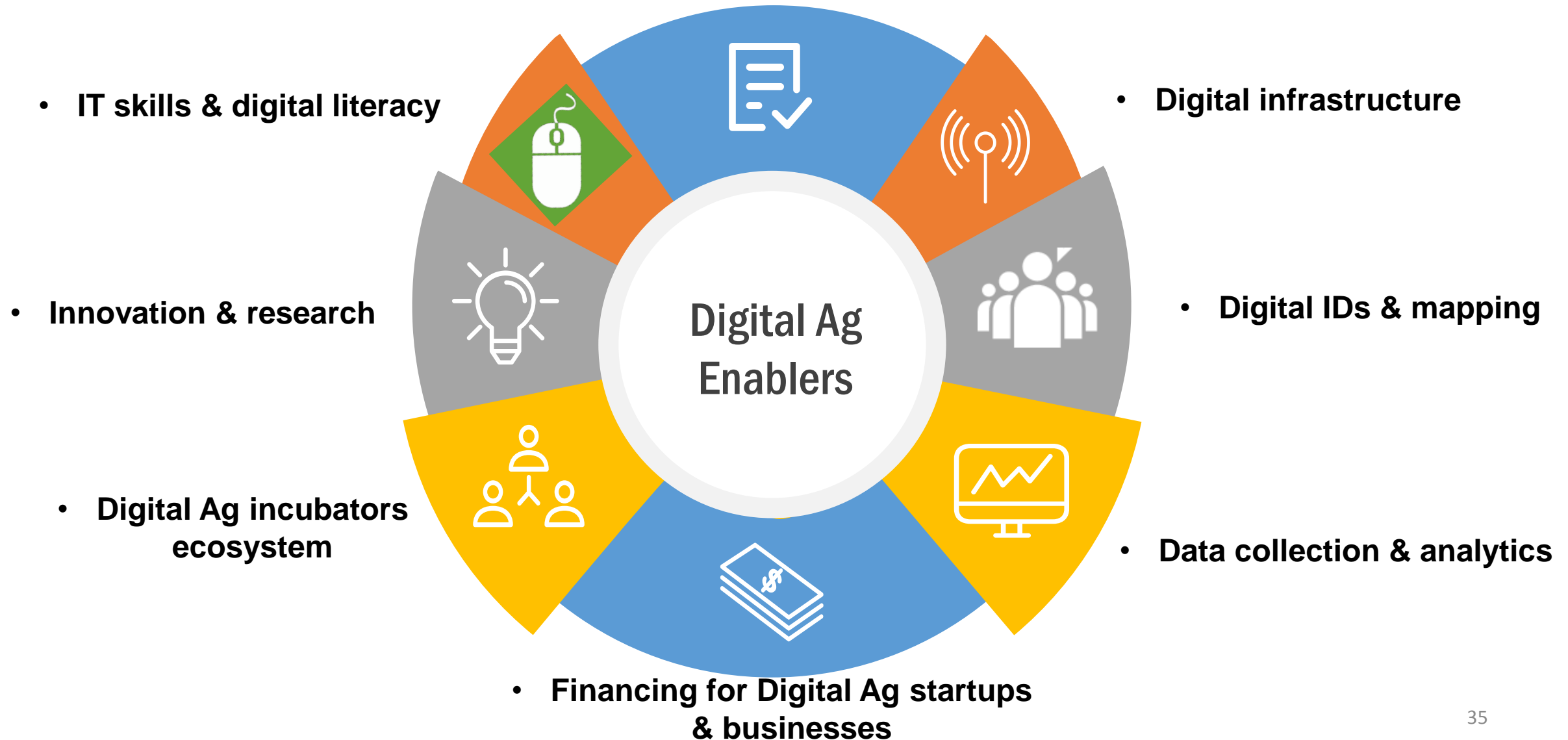
# African Development Bank

## Digital Solutions for African Agriculture Objectives

Value Chain	Input Supply		On Farm Production		Post Harvest & Agro-processing		Marketing & Consumption
Goals	 		 		 		 
ICT Tools	Enhance yields, scale productivity		Improve efficiency		Improve traceability, sustainability and profitability		Facilitate access to markets
	<ul style="list-style-type: none"> <li>Land &amp; soil fertility mapping by remote sensing/ mobile apps</li> <li>Weather monitoring and insurance products</li> <li>Finance Agro dealers</li> </ul>		<ul style="list-style-type: none"> <li>Mobile and ICT based advisory</li> <li>Satellite or drone based monitoring</li> <li>E-wallet</li> </ul>		<ul style="list-style-type: none"> <li>Forecasting &amp; shared automated harvesting</li> <li>Data capture &amp; analysis of field performance</li> <li>Traceability and mapping</li> </ul>		<ul style="list-style-type: none"> <li>Price monitoring</li> <li>Digital payment &amp; mobile money systems</li> <li>Digital marketplaces</li> </ul>

# Factors Needed To Scale up Digitalization In Agriculture

- Agriculture data, policies and regulatory framework



# AFDB FOOTPRINT IN THE DIGITAL AGRICULTURE SPACE

## LIBERIA E-Registration Platform



Registered **313,329 farmers**  
across 15 counties in Liberia

The platform digitally ID-ed farmers and agro-dealers to link them to a supply chain of inputs, finance and market places

## TOGO AGRIPME (Agri Porte Monnaie Electronique)



Targeting **150,000 farmers**

The project allowed farmers to benefit from a US \$1.3 million subsidy to buy inputs

Infrastructure	Technology parks and innovation hubs/ funds in Senegal, Rwanda, Tunisia
Knowledge products	Assessment of E-Voucher Systems in Africa
	Digital Agriculture Profiles (DAP) for Morocco, Kenya, Cote d’Ivoire, Rwanda and South Africa
	Policy Innovation for Transforming Africa’ s Food System with Digital Technologies

## **VII. Creation of Value and Shared Goals – MENTI Question 5**

# African Development Bank's Approach to Promote Digital Agriculture



## Entry Point

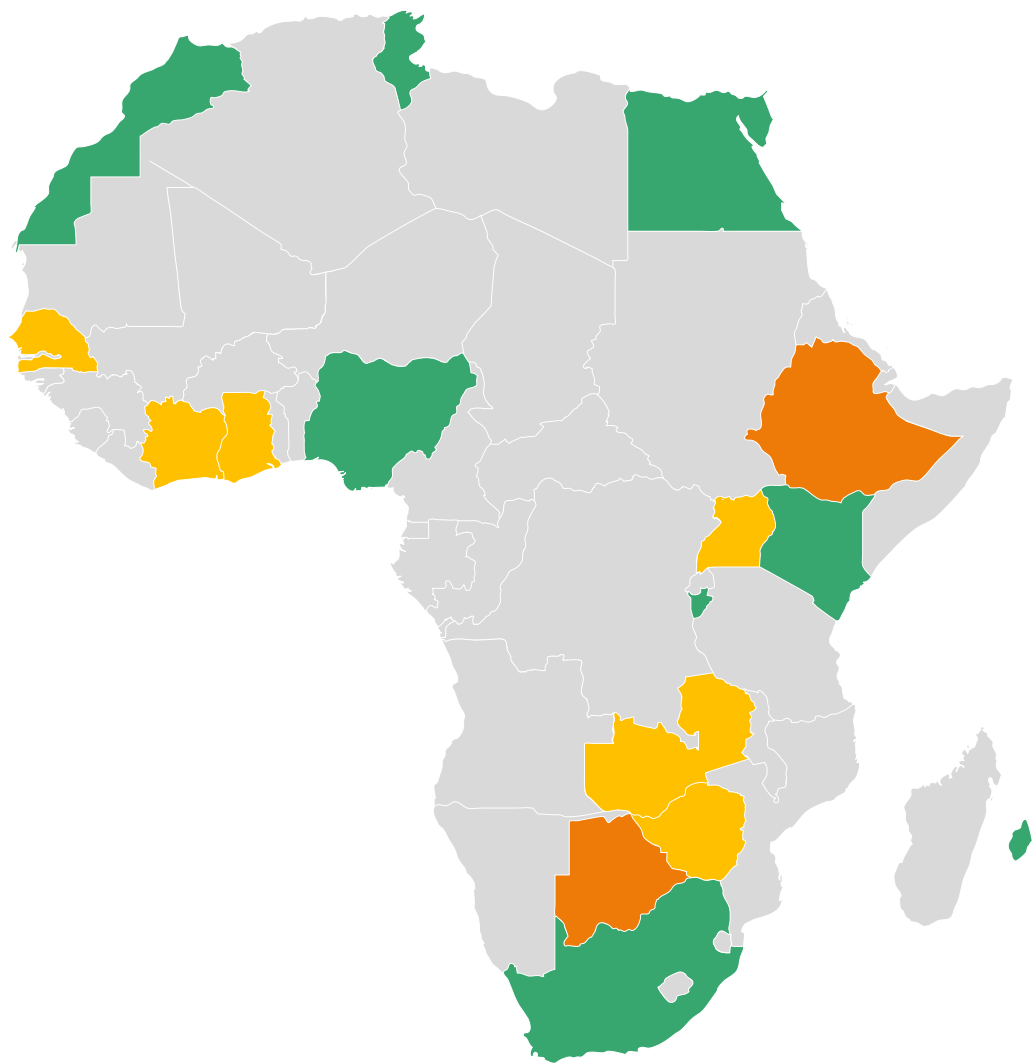
Through public sector investments, the Bank will enable Governments to:

- provide essential public goods.
- partner with the private sector.

## Intervention Areas

Pure Public Goods Interventions	Potential PPP Interventions
Enabling Environment for Digitized Agriculture	Access to Markets Blockchain for integrated food systems
Information Systems for Enhanced Productivity	Inclusive Fintech4Ag Co-invest in agtech startup funds
Digital Literacy and Capacity building	Smart Agriculture and Intelligent Systems

# African Development Bank Digital Ag Target Countries



Champion Countries	Mid-Track Countries	Early Starter Countries
Countries leading Africa's digital agenda	Countries that have shown political interest and have a growing tech community	Countries at the nascent stage of digital development
Kenya, Nigeria, South Africa, Tunisia, Morocco, Egypt, Rwanda, Mauritius	Cote d'Ivoire, Ghana, Senegal, Uganda, Zambia, Zimbabwe	Ethiopia, Botswana and other countries where there is opportunistic demand

# Bank Digital Solutions for Agriculture Flagship

## Partnership Opportunities – Menti 6

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Africa is rapidly digitalizing and open for business

### Investments to scale

- Novel farming systems
- Agribusiness marketplaces
- Remote sensing & drone technology
- Automated mechanization



### Potential partner institutions

- ICT & Tech private companies
- Agtech Impact investment funds
- Global FMCGs digitalizing their supply chain
- Development partners



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# THANK YOU

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