ITU Regional Economic Dialogue for Africa RED20-AFR:
Meaningful and Affordable Digital Connectivity for Africa

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Digitalisation in Africa and its impact on the Business Environment

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Outline of study

- Digital connectivity- new needs and implications for infrastructure and capacity
- Implications for competition
- Implications for regulation
- Implications for universal access/service
- Next-generation incentives for affordable access to digital services

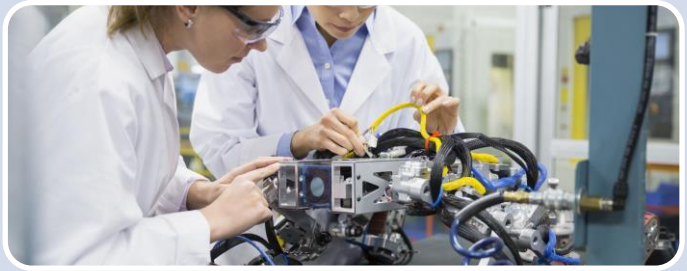
Introduction

- Digitalisation: using digital technologies to change existing business models and processes

Key changes from digitalisation

Internet of Things- new sources of data

The rise of platforms – changes to business structure/ market power



Big data analytics (AI and ML)

Internet of things

- Technologies that allow objects to communicate.
  - Forms include passive radio frequency identification, near field communication and machine to machine communication.
  - Allows for linking remote machines or devices to information systems to gather real-time intelligence.
  - Examples: automotive tracking, healthcare monitoring, electronics, agriculture, smart-metering and smart homes.

Big data

- Deriving value from combining large data sets and analysing computationally to see patterns, trends and associations.
  - Often defined from Vs: volume, velocity, variety (in terms of data structure)
  - Sources of data varied. e.g. health data, card transactions, locational data

Digital platforms

- Introduction of digital platforms to the ecosystem
  - Changing routes to market and consumers
  - Increase in concentration and change in bargaining power and competitive dynamics
  - Increased competition and regulatory intervention
  - In Africa- investment into infrastructure
  - Also investments in AI, ML etc in the region

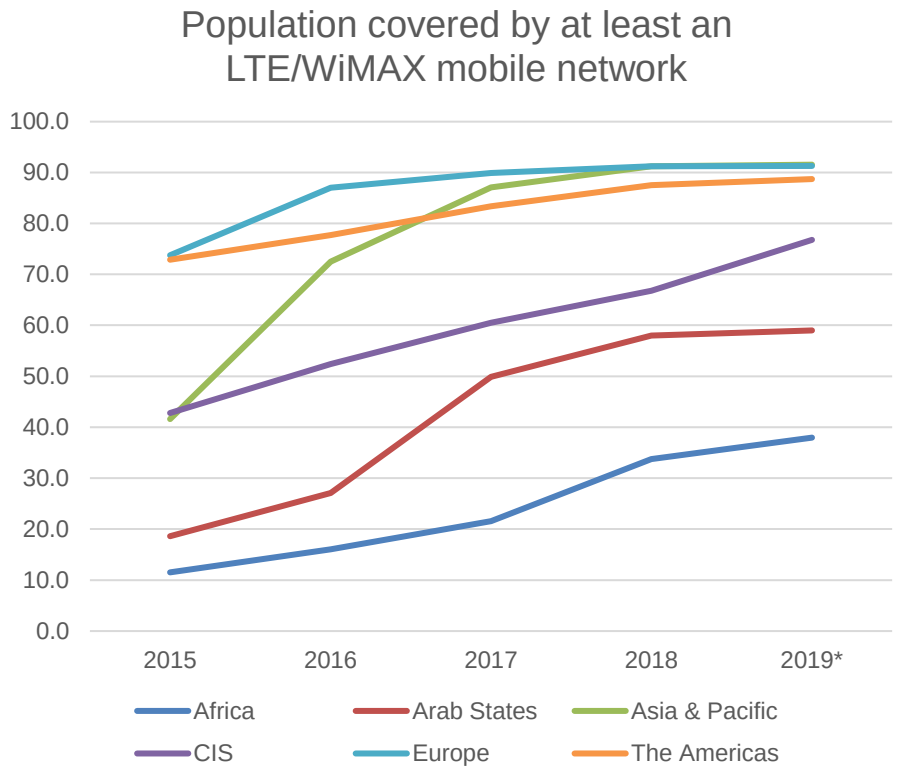
Overall implication

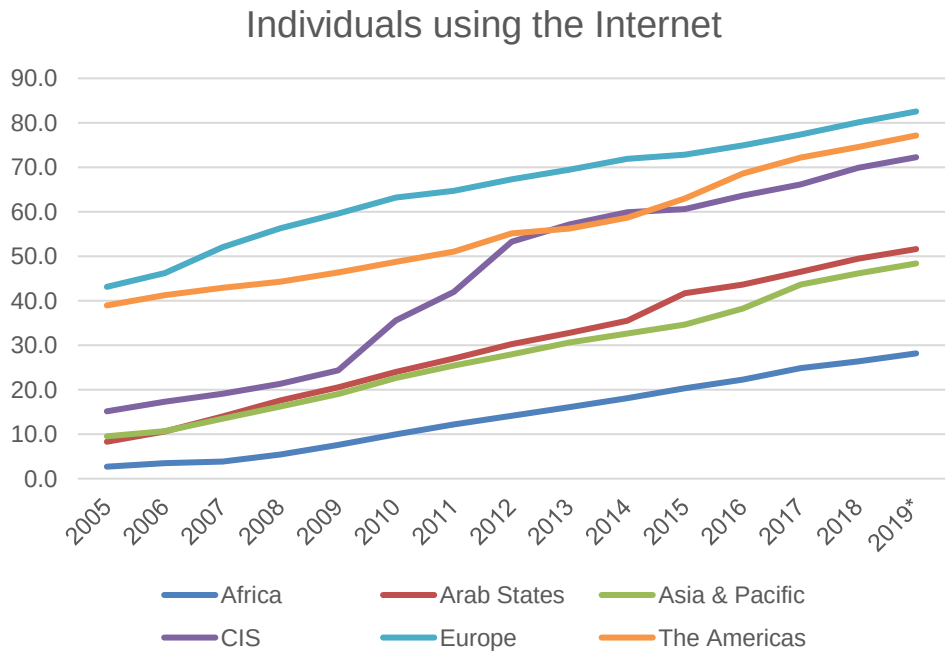
- Changes in volume and complexity of data required and processed
- Changes in some of the market participants

- Roles for operators:
  - Conduit for data flows
  - Holder of data

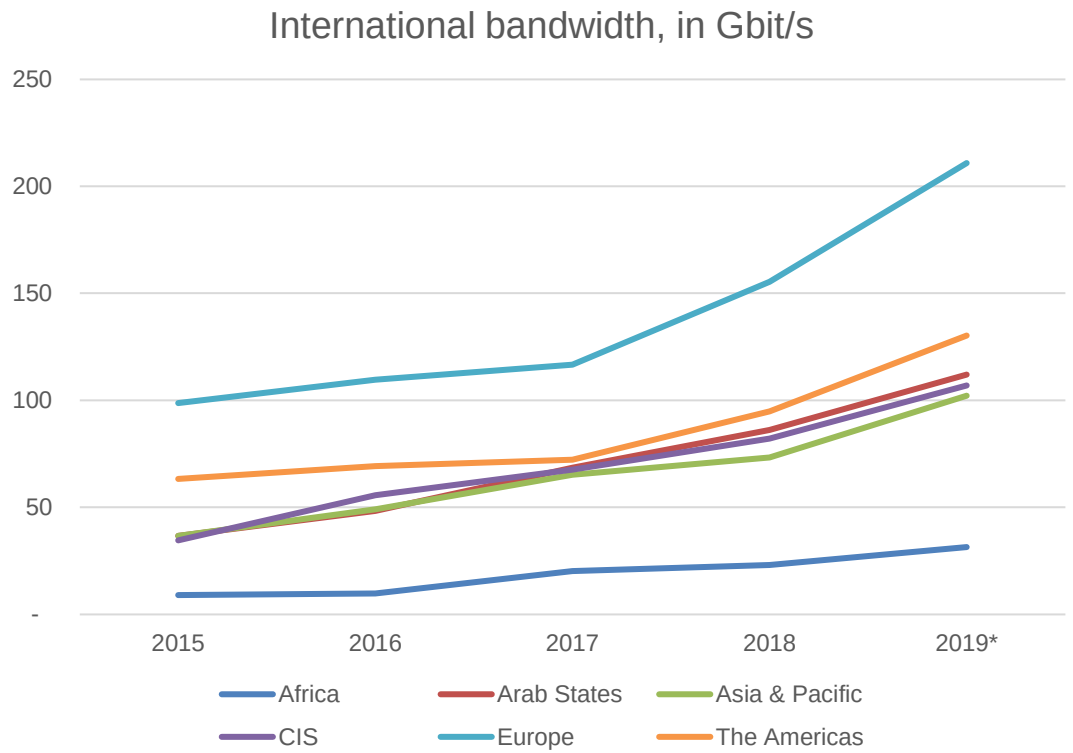
So what does this mean in the African context?

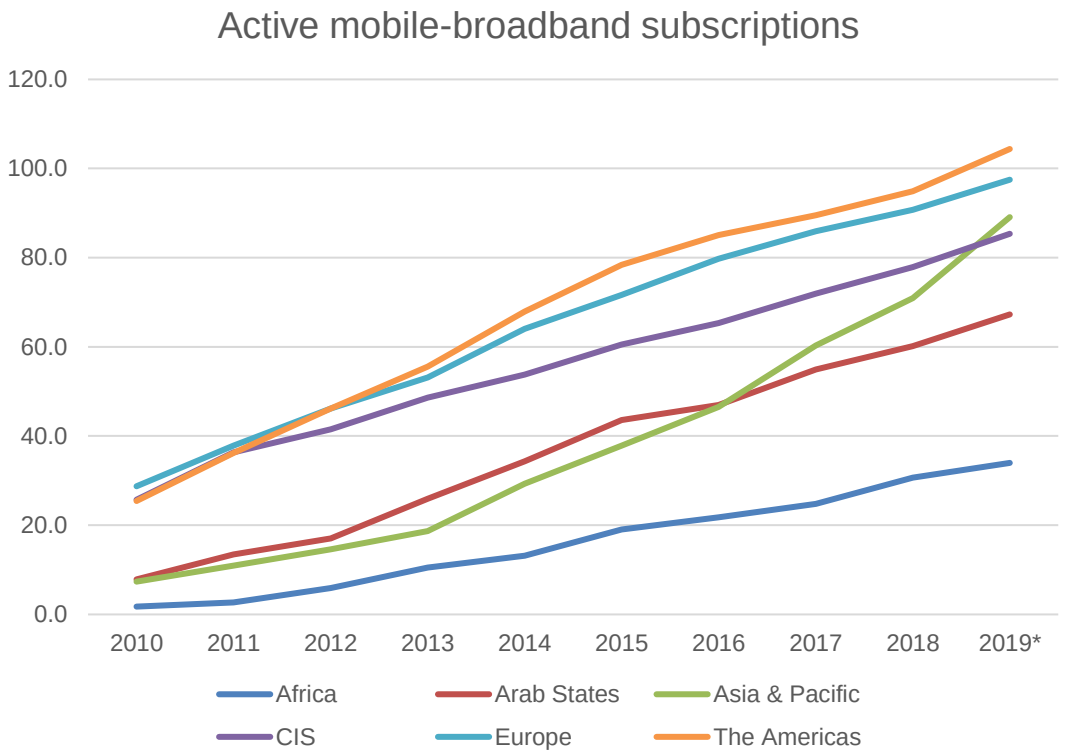
Coverage and internet usage in Africa is still low compared to other regions





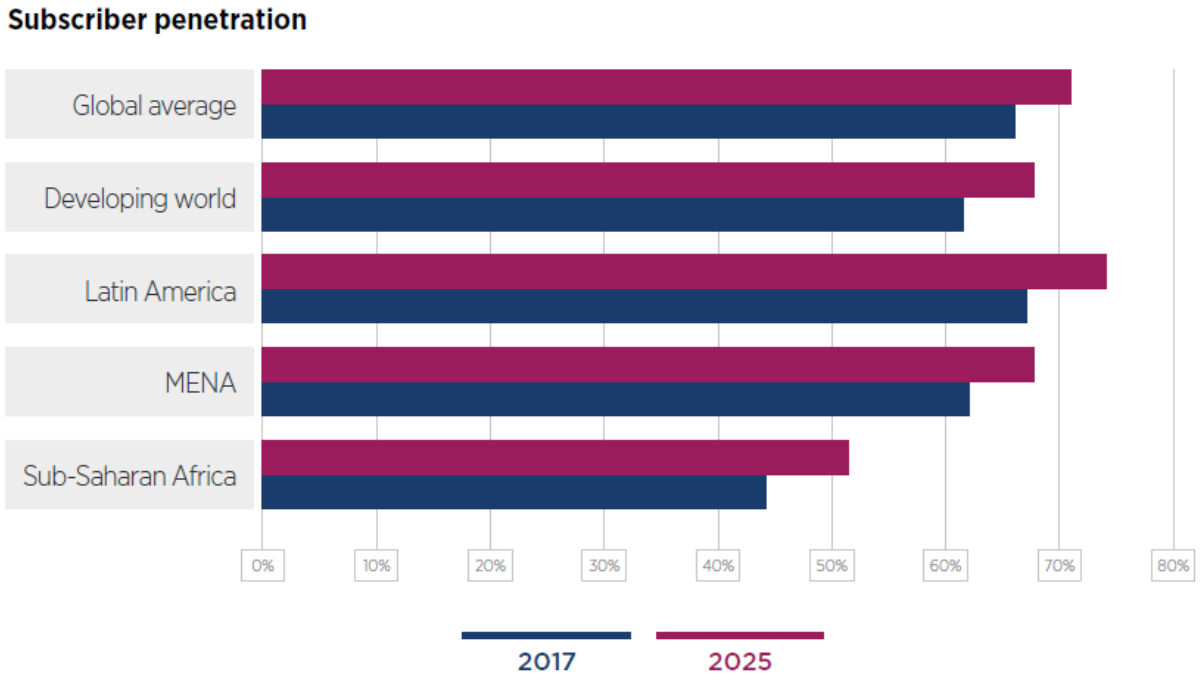
Africa is lagging significantly in subscriptions and bandwidth



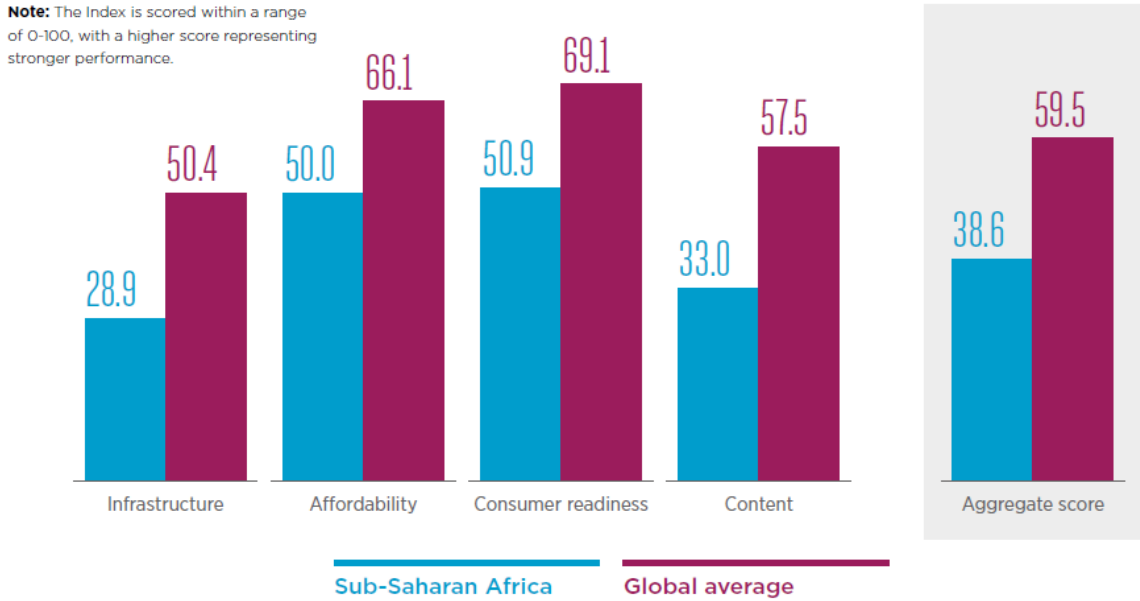


This gap is maintained in future projections

Mobile penetration in Sub-Saharan Africa remains low

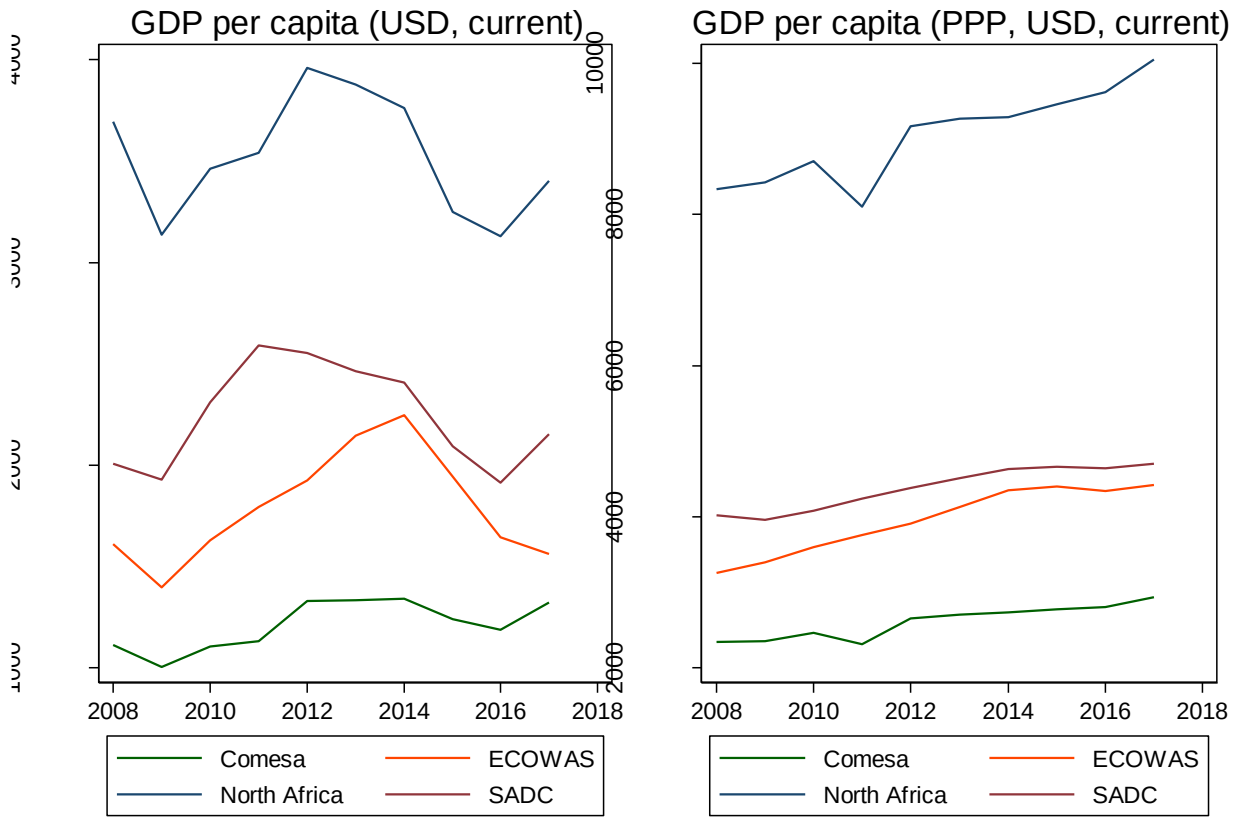


Mobile Connectivity Index is relatively low



Source: GSMA

Affordability likely to remain an issue



Source: World Bank, World Development Indicators

Digital applications that may become relevant to business in Africa

- Agriculture examples:
  - Optimising of irrigation etc.
  - Radiofrequency identifiers for animal tracking.
  - Digital phytosanitory records required for certification for exports.

  Early adopters likely to be large commercial farms with scale and sophistication, but high benefits for smallholders and developing farmers
  - Challenges: High set up costs, high data costs, rural connectivity

Digital applications that may become relevant to business in Africa

- Mining examples
  - Digitalisation of geological information
  - Outsourcing identification of mineral deposits,
  - Maintenance and monitoring systems.
    - sensors
    - wearable monitoring devices

Digital applications that may become relevant to business in Africa

- Manufacture:
  - Smart factories-
    - integration of systems through supply chain
    - Machine optimisation
  - feedback between retail and manufacture based on data analytics, including integration with online systems
  - Additive manufacture
  - May be scope for private networks

Digital applications that may become relevant to business in Africa

- Healthcare and education examples
  - Telemedicine, electronic records and data analytics for disease control, wearable monitoring devices for patients.
  - Online schooling/teacher supplementation
  - Challenges: High set up costs, high data costs, rural connectivity, devices and device costs

Consumer usage

- Fixed wireless access
  - Addressing increased connectivity from homes
  - Likely to be targeted deployment in dense areas

Challenges

Cost of devices and conversion

Cost of data

Coverage, speed and bandwidth available

How will this change?

- Consider consumer vs commercial usage:

- Introduction of 5G required
- BUT overall coverage also important

Higher cost of rollout for better technologies and more remote areas

Predictions

- Data consumption increasing fourfold by 2024 (Ericsson, GSMA)
- Number of smartphone connections likely to double to 675 million

- GSMA predicts 2.7% (28 million) connections to 5G in SSA
- Investment for 5G rising from 9-52%
- Application likely to be commercial at first

Supply side

- Technology build-out needs sufficient demand to justify investment
  - Role for greater network sharing-
    - New technologies for more efficient spectrum management, (sharing technologies and carrier aggregation solutions)- technology-
    - Role of independent tower companies
  - Backhaul investment needed
  - Power challenges- renewables
  - Challenge balancing competition issues vs benefits of infrastructure
  - Role of regulator (eg. in easing constraints relating to rights of way etc)

Demand side/ access

- Low prices to drive uptake- competition interventions
- Subsidies: Device subsidies and subsidy for customer premises equipment for FWA may be necessary
- Potential for demand side measures from governments?
  - Voucher systems
  - Increased ecosystem e.g. grant disbursements, e-government services
  - Industrial incentives

Regulatory context

- There are also a lot of areas that are still being developed and contested across the continent that will shape industry growth

Data privacy

Data sovereignty and localization

WTO negotiations on moratorium on tariffs for digital products

Taxation

Competition policy and enforcement issues

Regulatory context

- More consideration needs given to frameworks and key issues for ICT regulators
- At present only 6.82% of countries in Africa have a policy and regulatory framework for IOT and M2M - not clear how developed these frameworks are.

- **New issues and areas to arise from numbering/addressing to spectrum management and international roaming**

THANK YOU