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Actions in the Region towards SDG achievement through new technologies: Internet of Things (IoT), Cloud Computing, Big Data, Blockchain

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- Some areas of applications of new/emerging technologies
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- Strengthening Partnership for delivery of SDGs using ICTs
- Some observations
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INTRODUCTION

- Africa is able to leverage technology to leapfrog developmental stages that other parts of the world have undergone and achieve sustainable development (Read SDGs)

- However, to do this the continent has to deal with emerging challenges, identify opportunities and exploit them for socio-economic development

- This effort requires collaborations across all sectors and with multiple stakeholders/ partners

CHALLENGES AND OPPORTUNITIES FOR NEW TECHNOLOGIES

- **Youth unemployment** --- > "appropriate jobs??"

  approx. 420 million are youth (15-35 years); to increase to 830 million by 2050; and by2063, 46% 0f labour force will be young people (see www.au.int/en/yputh-development of AU Agenda 2063)

- **Hunger** ---> food security

  Most young people do not prefer to work on the farms yet food security is a critical issue....why?

- **Disease** --- > Universal health

- **Digital skills** ---> education

- **Some conflict** ---> peace and security

- **Climate change** --- > sustainable use of resource??

- **Vulnerability of women and children** ---> social protection?

- In the midst of these, there are continental, regional and country specific visions for a better Africa, see Agenda 2063, Global SDGs, and individual country level vision

  ...emphasis on information based or knowledge based society by a certain year

- ...and ICT holds the promise as both a stand alone sector and as an enabler of all other sectors a cross the SDGs

QUESTION:

- *How can we fast-track development of ICTs to support the realization of the development goals ; particularly the leveraging of new and emerging technologies?*

SOME ICT IMPERATIVES FOR AFRICA

1. Getting Africa into the information society and into the knowledge economy by bridging digital divide and enduring inclusion:

- Broadband (and supporting) infrastructure (BB) deployment for the whole population
- skills relevant for the knowledge economy (digital skills)
- content and applications through innovations

2. Using appropriate ICT technologies and approaches (policy, regulation, legislation etc) to address the needs of the vulnerable members of our society - women, children, elderly, people with disability
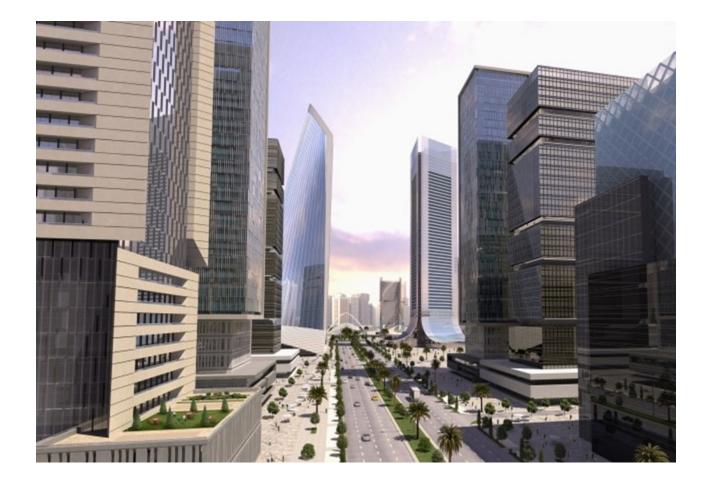
SOME KEY INDICATIVE NEEDED ACTION

1. Comprehensively addressing the complete scope of the broadband ecosystem development, including: -

   – enhancing and creating digital skills through ITU CoEs

   – promoting innovation hubs and technology parks to develop content and applications

   – supplying clean energy for ICT

   – dealing with e - waste in the framework of sustainable environment (and IoT, big data, cloud computing and Block chain can contribute to this)

2. Broadly delivering e - applications using IoT, Big data (BD), Could computing (CC) and Block chain (BC), for example:

- IoT and smart cities, e.g., Rwanda (Vision City), South Africa (Waterfall City), Kenya (Konza Techno City), Nigeria (Eko Atlantic), and Ghana (Hope City) have plans and/ or commenced implementation to generate jobs for the youth

- Big data/ analytics to guide decision making and appropriate action by government and private sector

Effective integration of physical addressing for e-commerce - --> the postal sector is addressing this in collaboration ....

Eko Atlantic City, Nigeria

Konza Techno City, Kenya

Cloud computing (CC)

- CC is the "removing of the burden of deploying infrastructure and maintaining it due to shortage of 'in-house' skills and limited funding for CAPEX"; It allows sharing of resources and the concept of 'use-on-need-to' basis
- Cloud computing, includes
  - IaaS
  - PaaS
  - SaaS
  - etc
- *Related concepts around IoT are: internet, big data, analytics, artificial intelligence (essentially machine learning)*

SOME POSSIBLE APPLICATION AREAS FOR IOT, BD, CC AND BC

IoT

---> in agriculture for food security : some innovations are already taking place across the continent

---->Smart transport also taking place

---->Public safety installation eg cameras

BD

Integrated citizen databases for planning and public service delivery, health surveillance, climate monitoring, and emergency responses
....<<*this is (can be supported by cloud computing>>*

Cloud computing

---> e.g. , for educational content hosting, management and e - learning; several cloud based learning management systems eg Moodle are available

SPECIFIC ACHIEVEMENTS ON BROADBAND

The ITU continues to support Africa in broadband development as the platform for deployment of IoT related services....

At individual country level and sub regional levels (EAC, SADC, ECOWAS, UEMOA, IGAD etc) some of the achievements on broadband strategies are:-

- Elaboration of broadband strategies with focus on universal access
- Revision of the definition of universal access/ service to include broadband
- Strengthening of universal service fund administration to support broadband
  Reforms in the licensing/ and authorization of operation in the ICT sector to reduce barriers to new entry
- Emphasis on innovations through promotion of national digital literacy programs

BUT MORE NEEDS TO BE DONE......such as consideration for:

- Targeted fiscal incentives to increase the spread of BB connectivity to support IoT and related initiatives/ projects

- as much as possible regulatory incentives to attract investors in the IoT , BD, CC and BC

INITIATIVES ON IoT, BD, CC AND BC AFRICA (not exhaustive)

- CRASA hosted an IoT workshop, in Gaborone, Botswana
- Africa is active in the IoT and smart cities standardization. See ITU SG20 and the "ITU Digital African Week" in Nigeria, 2019
- Kenya has a taskforce on Block chain and is host an investor conference for smart cities
- in 2009 CTO held a workshop on ICT4DM to address the specific vulnerabilities of SIDS (small island developing states)

  ...the new technologies are now able to make greater contribution to this effort which is aimed at enduring public/ citizens safety during natural disasters......these initiatives are taking place across the continent

PARTNERSHIPS

- Partnerships are key in the development deployment of new technologies for socio - economic development

- collaborations between government (including local government), regulators, service providers, technology providers, consumer organizations, civil society, academia, financial institutions, physical planners, postal sector, standards bodies, energy/ electricity companies, manufactures of devices; and bilateral and multilateral partners

...this can be viewed using either an orchestra metaphor a 4 x 100 m relay metaphor where the effort of each orchestral player or relay sprinter is critical to the success of the whole team - Africa

SOME OBSERVATIONS REGARDING NEW/ EMERGING TECHNOLGY ADOPTIONS (IoT, BD, CC, BC)

Citizens would like to use technologies productively...for political, social, and economic development but ....

---> demand side issues:

- Digital skills
- Affordability
- Relevant content and applications
- Privacy and security while online ---> need for collaborations to address security threats and build trust in new technologies

Supply side issues:

- Investment in emerging technologies to support SDGs
- Sustainable business models
- Legislation to address the security issues associated with online presence; several on attacks have led to enormous *loss*. this means that even health and transport application can be attacked leading to a catastrophe

* IoT, BD, CC and BC demand more online presence yet there are pertinent privacy and security concerns which reduce trust by potential users of these services

DISCUSSION POINT (a suggestion)

- Are we collaborating enough on important development agendas that requires ICT input?

- What area need immediate attention and our collaborative effort to effectively support the realization of at least the most urgent SDGs for Africa e.g., Universal health, good security, extreme poverty ...?

- What collaboration models would work best for delivery if specific SDGs using the emerging technologies?

References

- **Estate Cloud** June 13, 2018
- *www.au.int/en/yputh-development*

Thank you

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