

**ACE Impact**  
**Pre-identified Regional Development Challenge**  
**Digital Development and ICT**

**Terms of Reference**

**Guidance**

Proposals that respond to the Digital Development and ICT Pre-identified Regional Development Challenge should address the following Terms of Reference(ToRs) in the appropriate section of the proposal. While it is unlikely that a single proposal can address all of the ToRs, the proposal should make a substantial, credible effort to respond in a way that presents a cohesive, integrated program of education, research and partnership activities that aligns both with the ToRs and with the goals of the ACE Impact project.

**Background**

Africa faces urgent digital development challenges: the continent has the highest rate of mobile phone adoption in the world; its countries' governments are all looking at Information Communication technologies to leapfrog and to develop alternative sources of growth; and yet it lacks the adequate skills and competencies to sustain and maintain its growing digital infrastructure, especially in the public-sector space.

Over the next 25 years, an additional 500 million people will be using broadband to access the Internet, yet many of these new users are ill-equipped to understand the risks of cyber space. At the same time, technologies are changing how people transact across the world, increasing the volume of on-line transactions, and hence the volume of data shared over the Internet. A primary topic of concerns is the new risks that are emerging through technological innovation and disruption, such as data privacy, consumer protection, and on-line safety for children and un-educated people.

What can Africa do better to utilize research talents and resources within the academia community leveraged to play its role in capacity building in the region and educating the next generation of digital natives or professionals? To enable society to tap on skilled resources to sustain and innovate the local digital ecosystems? To ensure inclusive access for all to knowledge and social services available on the Internet?

**Terms of Reference**

- I. The selected Africa Center of Excellence in Digital Development and ICT will consider the following skills related aspects of the Development Challenge
  1. Digital Policies
  2. Software development and management information systems
  3. Creating and maintaining mobile-based applications
  4. User-centered design
  5. Data standards, Database management
  6. Cybersecurity and protection from intruders and hackers

II. To address the skills needs, long-term degree programs available through the Center should include:

<b>Master's Degree Programs</b>
1. M.S. in Computer Science, Software and Systems (Coding Languages and Programming, Computer Graphics, web applications programming, multimedia web development)
2. M.S. in Management and Information Systems (Systems/Requirement Analysis, Databased design, M&E systems)
3. M.S. in Data Sciences (associated with statistics/applied mathematics)
4. M.S. in Telecommunications
5. M.S. in Computer Engineering (computer hardware, data communications, networking)
6. M.S. in Cybersecurity (malware analysis, offensive/defensive network security)
<b>Ph.D. Programs</b>
1. Ph.D. in Computer Sciences and Application Development
2. Ph.D. in Artificial Intelligence, Disruptive technologies (blockchain, IoT)
3. Ph.D. in Integrated Logistics

III. To address professional trainings needs, short term courses should include:

<b>Short Term Courses</b>
1. Leadership and project management
2. Maintenance and operation of networks
3. Database management
4. Enterprise architecture and interoperability
5. Programming in Java
6. Web services development
7. Spectrum management

IV. The selected Africa Center of Excellence in Digital Development and ICT will address the following applied research related aspects of the Development Challenge:

1. Digitalization and optimization of Public administration
2. How can digitalization help modernize federal and local governments in Africa?
3. Change management, Transition from “analog” to digital societies (Refer to WDR 2016)
4. Legal and Regulatory framework reform for a digital age
5. Procurement and contracting for large scale information technology projects

V. The selected Africa Center of Excellence in Digital Development and ICT will undertake an applied research program that includes the following themes:

<b>Applied Research Themes</b>
1. Green logistics/equipment for sustainable digital development
2. Smart digital development in smart cities
3. Cloud computing
4. Cybercrime and its legislation

VI. The selected Africa Center of Excellence in Digital Development and ICT will have an established network of core industry/sectoral partners identified in the proposal, including:

1. Governments and municipalities
2. Technology industry (Software firms, Network operators, etc.)
3. Digital solutions from other sectors (eTransport, eHealth etc.)

- VII. The selected Africa Center of Excellence in Digital Development and ICT will have an established network of academic and/or research institute partners identified in the proposal, including:
1. Regional universities that maintain active education and/or research activities focused on digital development and ICT
  2. Recognized global universities that maintain active international research collaborations focused on digital development and ICT.