

# Analyzing Systemic Barriers to Digital Innovation: The case of Kenya, EAC, AU and the AfCFTA Protocol on Digital Trade

- **December 5<sup>th</sup>, 2023**
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# Framing the conversation: AfCFTA, Digital Economy, Common African Market

- National Innovation System
  - Actors, linkages and rules
- Holistic Innovation Policy Regimes at different levels
  - National, regional, continental and global
- Business and Human Rights
  - Do major corporate entities have a burden of care for all actors in their value chain?
- Sustainable Development Goals
  - 17 goals, 169 targets, 247 indicators
- AfCFTA Protocol on digital Trade
  - An ICT Innovation Ecosystem
  - An Innovative Governance System (interests, institutions and implementation)



Source: Nairobi Leo, WIRED, Firstpost

# CONTEXT: What are systemic barriers to digital innovation? Example 1: The case of Digital Service Tax in Kenya



January 2021



April 2022



February 2023



February 2023



March 2023

“Kenya began collecting the digital service tax (DST) on January 1, 2021, targeting revenues earned by digital service providers including US tech giants Google, Netflix, Meta, Twitter and Microsoft.

But the taxman now finds itself in a dilemma two years later, faced with two different models of computing the tax amid growing pressure to abandon its hardline stance and join other countries that have adopted a globally negotiated unified solution.” SOURCE: Business Daily, February 22<sup>nd</sup> 2023

# CONTEXT: What are systemic barriers to digital innovation? Example 2: The case of Digital Learning in Kenya

A March 2020 study by a US research team (Hodges et al. 2020) coined the phrase “Emergency Remote Teaching” (ERT) to describe how COVID-19 related institutional constraints drove digital learning adoption among various universities. ERT is a form of digital learning involving “a temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances”. According to Hodges et al. (2020), many universities canceled “all face-to-face classes, including labs and other learning experiences,” and “mandated that faculty move their courses online to prevent the virus that causes COVID-19.”

## March 2020 Strathmore University



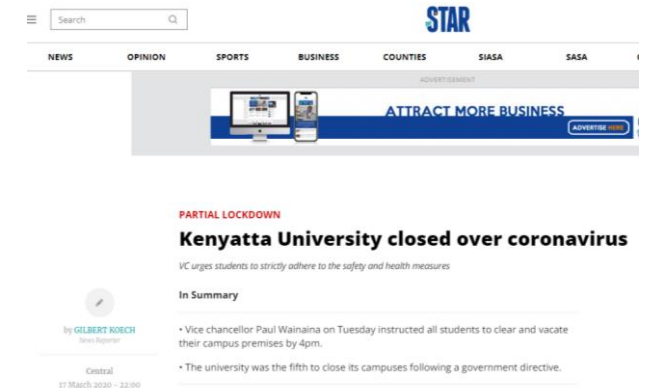
## August 2020 Strathmore University



Strathmore University students at the institution before Covid-19 struck. Photo credit: File | Nation Media Group

By David Aduda  
Consulting Editor

## March 2020 Kenyatta University



## April 2020

## University World News Africa Edition

Global Edition Africa Edition Asia Hub SDGs Hub Transformative Leadership Special Reports Partners

### Universities face multiple challenges in wake of COVID-19 closures

Gilbert Nganga, Maina Waruru and Gilbert Nakweya 07 April 2020

Kenya's shuttered universities face the twin challenge of rolling out online learning for thousands of students and finding money to pay salaries and meet their financial obligations at a time when major revenue streams are shut.

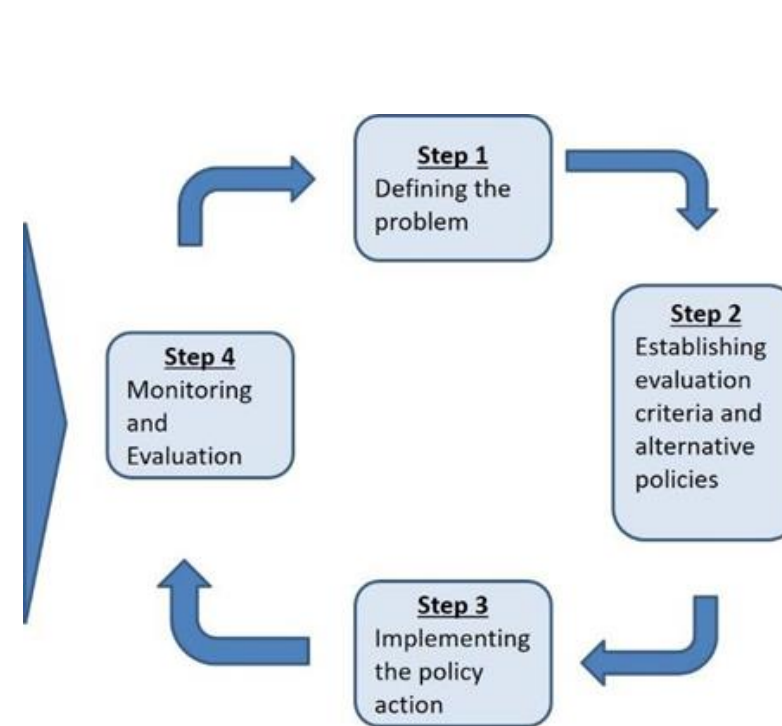
Like private institutions, public universities rely heavily on tuition fees to fund their operations since any subsidies they receive from the government are inadequate to meet their financial needs.

# CONTEXT: What are systemic barriers to digital innovation?

The Policy Process Model is anchored in political systems theory and provides a systematic way of moving from a policy problem to a solution working through institutions with a focus on AI and Africa's Demographic Dividend

**POLICY PROCESS**  
(Cloete & de Coning)

1. Problem definition
2. Policy design
3. Policy implementation
4. Policy evaluation

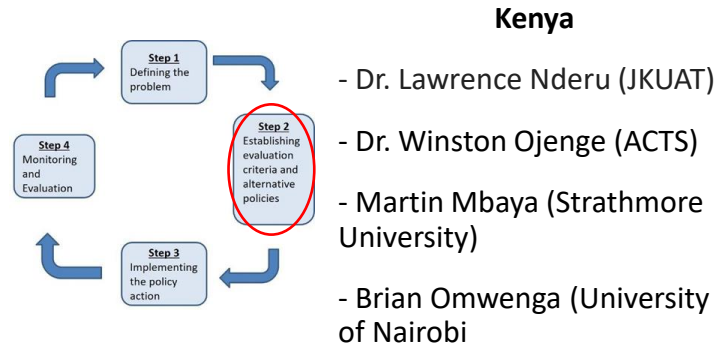


Mbaya, Mudida and Omwenga 2022

# CONTEXT: What are systemic barriers to digital innovation?

## EXAMPLE 3: AI in Kenya through a Practitioners Guide

AI from a perspective of policy design/formulation (policy options and policy instruments/tools)



<https://www.bmz-digital.global/en/overview-of-initiatives/fair-forward/>

<https://www.data4sdgs.org/>



### AI Practitioners' Guide Validation Workshop

Thursday 1<sup>st</sup> December 2022  
Time: 9 - 12.15 pm  
Venue: TBC

#### Background

The Global Partnership for Sustainable Development Data (Global Partnership) is a fast-growing, dynamic international partnership bringing together over 650 different organizations including governments, UN agencies, private companies, civil society organizations, and many others. The Global Partnership is undertaking a project on behalf of the German Ministry of Federal Affairs (BMZ) and GIZ Kenya under the auspices of the "FAIR-Forward – Artificial Intelligence for All" that pursues three main goals:

- Remove entry barriers to AI – access to training data and AI technologies for local innovations.
- Strengthen local technical know-how on AI – capacity development in Africa and Asia.
- Develop policy frameworks ready for AI – ethical AI, data protection and privacy.

The Global Partnership in partnership with GIZ Kenya established a multi-stakeholder working group (Community of Practice) drawn from government, think-tanks, academia, non-governmental organizations (NGOs), journalists, human rights advocates, civil society, local and international NGOs, private sector, and legal experts, among others, who have contributed to the development of an AI Practitioners Guide.

**DEFINITIONS:** Artificial Intelligence (AI); AI Practitioners; AI Developers; AI Users

**POLICY INSTRUMENTS / TOOLS:** "Other than the principles of ethical AI, another dimension of best practice in using and deploying AI involves identifying tools that actors can use in the policy process with a focus on AI. Such tools can be applied in the four steps of the policy process model: problem definition, policy formulation, policy implementation, and policy evaluation. Importantly, different tools can be used to address dilemmas at one or more steps of the policy process model, focusing on AI. Examples of some tools and the steps they can apply are the Tony Blair Institute's AI Readiness Scorecard Toolkit, **GAEIA Ethical Dilemma Template** (<https://gaeia.world/>), **Constructions of Public Office Kenya Scenarios** ([https://warwick.ac.uk/fac/arts/history/research/centres/ehrc/research/current\\_research/constructionpublicoffice/kenya/scenarios](https://warwick.ac.uk/fac/arts/history/research/centres/ehrc/research/current_research/constructionpublicoffice/kenya/scenarios)), and **Kenya National Action Plan on Business and Human Rights** (<https://globalnaps.org/>)."

# CONTEXT: What are systemic barriers to digital innovation?



**PROJECT WEBSITE:** <https://africa.ai4d.ai/>

**PROJECT PURPOSE:** Our mission is to improve the quality of life for all in Africa and beyond by partnering with Africa's science and policy communities to leverage AI through high-quality research, responsible innovation, and talent strengthening.

## EXAMPLE 3: AI in Africa through AI4D

AI from a perspective of policy implementation (projects and programmes)

### AI Developers



### Cameroon

#### University of Yaounde I

- Dr. Messi: parallelization of machine learning models
- Donald: parallelization of recurrent neural networks for hate speech detection.
- Brice : Medical image captioning
- Mogo : reduce the time of graph analysis application using machine learning techniques

### AI Practitioners



### AI Users



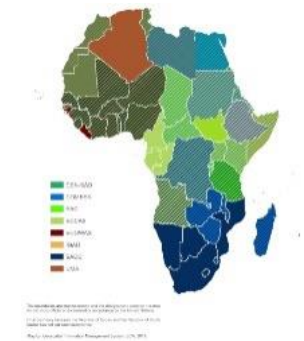
### Kenya

#### African Center for Technology Studies

- Caroline (HR) – Using AI for background checks
- Fiona (Communications) – Using AI to identify appropriate images for use in marketing posters
- Alfred (Communications) – Using AI in social media
- Marvin (Procurement and Logistics) – Using AI to track individuals and materials during all event phases e.g. automated check-in and lost luggage

# Conclusion and Recommendations

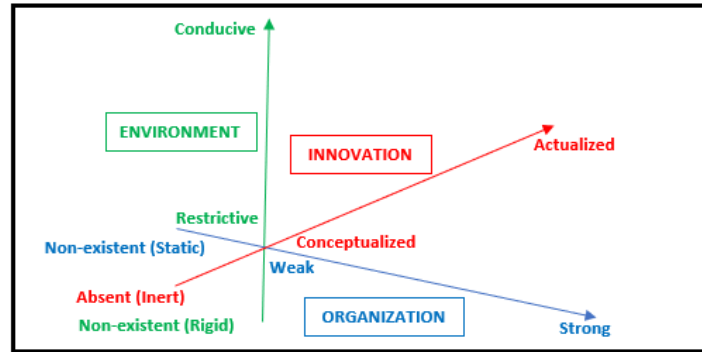
- African Policy focused Think Tanks should prioritize **Technology Forecasting, Technology Foresighting, Technology Prospecting** and **Technology Assessment** for Emerging Technologies like Artificial Intelligence in support of national, regional and continental governments through global partnerships
  - Example: GPSDD (GIZ); AI4D (SIDA/IDRC); November 2023 convening (Microsoft, IBM, AUDA-NEPAD, University of Pretoria)
- The AfCFTA Protocol on Digital Trade should pilot in practical ways how internet access, payment systems and physical movement of goods and services can benefit anyone transacting
  - Pilot in 10+ African countries: Kenya, South Africa, Senegal, Ethiopia, Rwanda, Ghana, Cote D'Ivoire, Cameroon, South Sudan, Burundi, Nigeria and Egypt
  - Learn from content creators!





My ongoing research spread out over the next many years focuses on Responsible AI and ethics with an emphasis on: policy; sustainability, innovation and human rights.

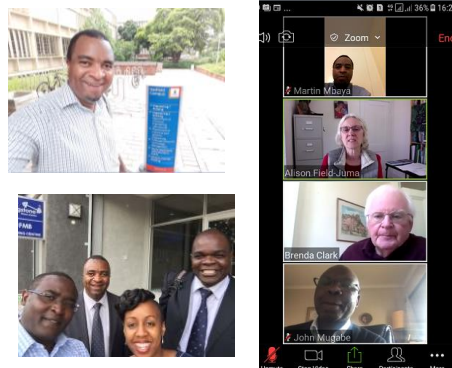
We are experimenting constantly too in society!



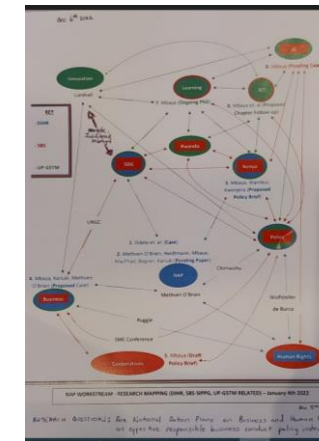
**PhD Primary Research Question:** What are the systemic barriers to digital learning innovation in Africa as experienced by universities?

**M. B. O. N. A. ? Framework on responsible AI**

- **Me**
- **Bias**
- **Ownership**
- **Natural Intelligence**
- **Artificial Intelligence**



Using AI to compose music



**UNITED NATIONS GUIDING PRINCIPLES ON BUSINESS & HUMAN RIGHTS**

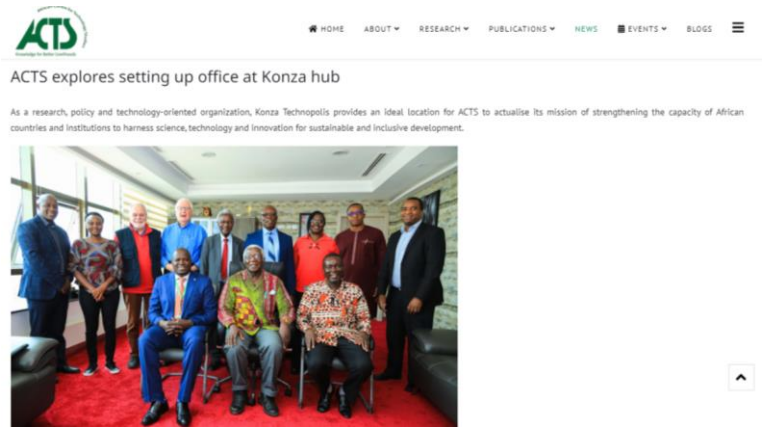


**Project Research Question:** Are National Action Plans on Business and Human Rights an effective responsible business conduct policy instrument?

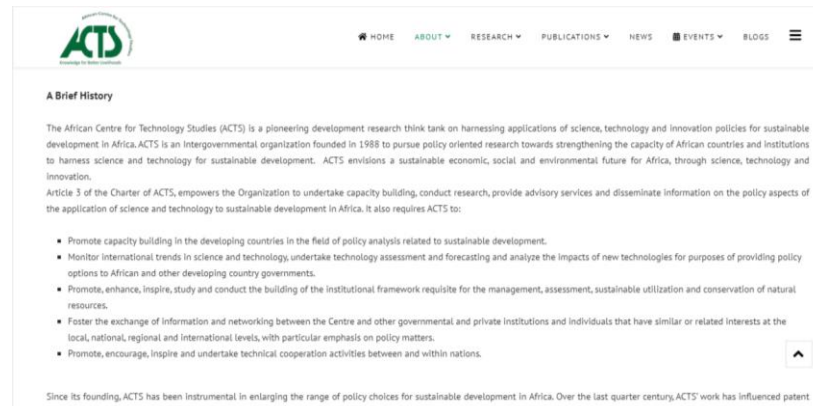
# BACK TO CONTEXT: What are systemic barriers to digital innovation?

## EXAMPLE 3: AI in Kenya through ACTS and Konza

Konza hosts key institutions like the Africa Center for Technology Studies - ACTS (inspired by SPRU in UK) and KAIST Kenya (inspired by KAIST in S. Korea) that drive innovation in AI



### ACTS

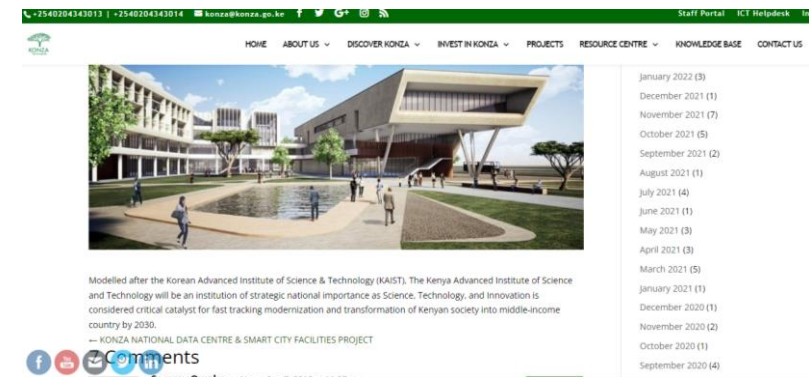


<https://www.acts-net.org/about/acts>

IMAGE SOURCE: Internet



### KAIST (Kenya)

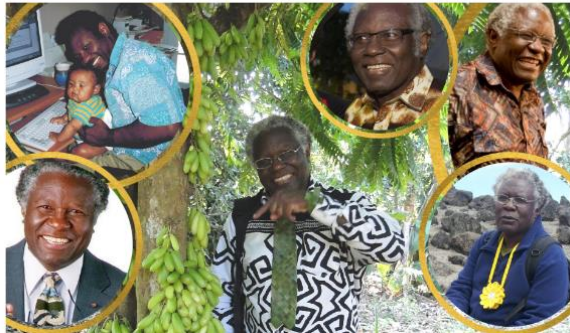


<https://konza.go.ke/project/kenya-advanced-institute-of-science-technology/>

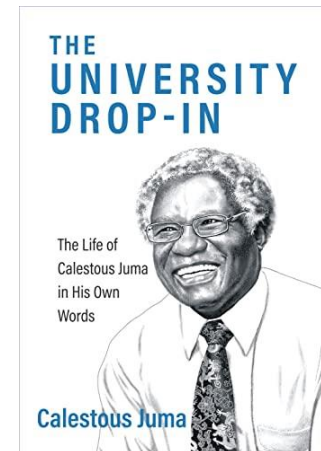
AI Practitioners from various National Innovation Systems, joined us at ACTS and CJLF as we celebrated the legacy of late Prof. Calestous Juma on Thursday December 15<sup>th</sup>, 2022 virtually and launched his book 'The University Drop In' in June 19<sup>th</sup>, 2023 at Strathmore University.



CJLF CALESTOUS JUMA LEGACY FOUNDATION



The Calestous Juma Legacy Foundation  
invites you to join us virtually  
15th December 2022  
12pm EST (Boston) / 8pm EAT (Nairobi)  
*Remembering Calestous Juma*  
Celebrate his life and legacy on the 5th year Anniversary.  
Hosted by science journalist Ehsan Masood and featuring  
Dr. Ruhakana Rugunda, Prime Minister Emeritus of Uganda.  
With personal video tributes from his students – plus exciting announcements:  
The opening of the Calestous Juma Innovation and Resource Hub  
in Port Victoria and his Autobiography!



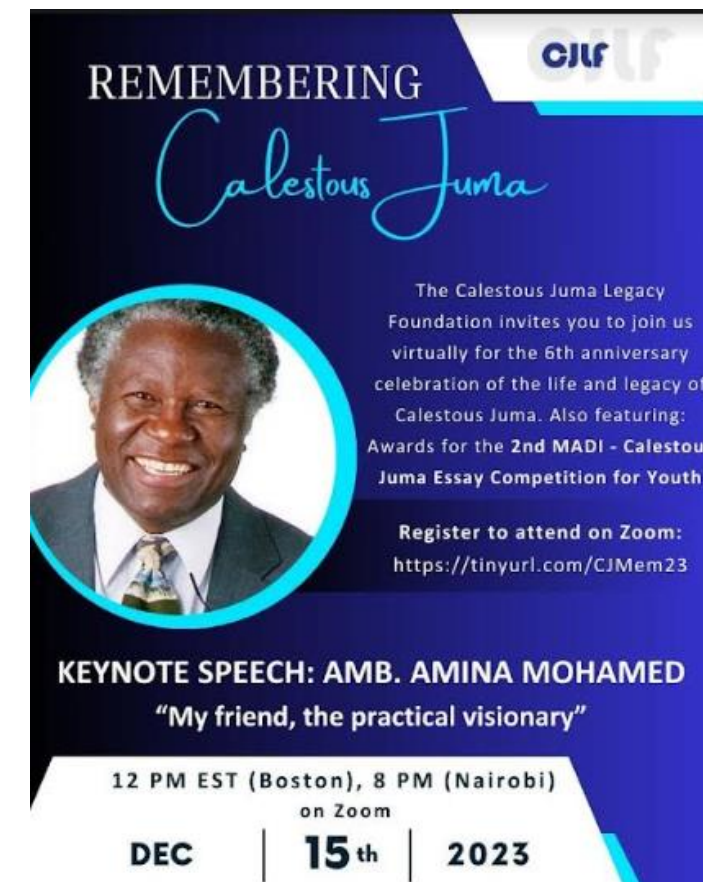
<https://www.calestousjuma.org/>

Thank You!

WEBINAR LINK: CENTER FOR GLOBAL DEVELOPMENT

[https://youtu.be/Hva1hsqwOtY?si=T\\_KUCCDdURZqy27o](https://youtu.be/Hva1hsqwOtY?si=T_KUCCDdURZqy27o)

We meet again virtually on Friday  
December 15<sup>th</sup>, 2023 to celebrate  
Prof. Juma's legacy – JOIN US!



REMEMBERING  
*Calestous Juma*

The Calestous Juma Legacy Foundation invites you to join us virtually for the 6th anniversary celebration of the life and legacy of Calestous Juma. Also featuring: Awards for the 2nd MADI - Calestous Juma Essay Competition for Youth

Register to attend on Zoom:  
<https://tinyurl.com/CJMem23>

**KEYNOTE SPEECH: AMB. AMINA MOHAMED**  
"My friend, the practical visionary"

12 PM EST (Boston), 8 PM (Nairobi)  
on Zoom

**DEC | 15<sup>th</sup> | 2023**

