Building Africa's Technological Sovereignty

AiCE Africanism & Pan-African Studies — Infrastructure, policy, and vision

The Infrastructure Challenge

Every dimension of digital economic activity depends on physical infrastructure: the undersea cables that connect Africa to the global internet, the terrestrial fibre networks connecting African cities, the mobile network towers reaching rural communities, the data centres storing and processing data, and the electricity supply powering it all. Africa's digital infrastructure, while growing rapidly, remains significantly underdeveloped relative to the continent's needs — and much of what exists is foreign-owned.

Electricity is the foundation of everything. Approximately 600 million Africans — more than 40% of the continent's population — still lack access to reliable electricity. Without electricity, digital devices cannot be charged, internet connections cannot be maintained, and data centres cannot operate. Fortunately, the same decentralised renewable energy technologies — solar panels, off-grid batteries, mini-grids — transforming African electricity access are also enabling digital access, as solar-powered charging stations, community wifi networks, and off-grid connectivity solutions extend the digital frontier.

The undersea cable infrastructure connecting Africa to the global internet is a particular strategic vulnerability: the cables are owned primarily by foreign corporations — including Facebook, Google, and various telecommunications companies — giving them physical control over the arteries of African digital communication. The 2Africa cable project, partly funded by Meta, is expanding African undersea connectivity significantly — but it also deepens African dependence on foreign-owned infrastructure. An African alternative — a continentally-owned undersea cable network — would be a significant step toward genuine digital sovereignty.

The Policy Environment: Enabling African Tech

Technology ecosystems do not grow only from entrepreneurial energy. They require enabling policy environments: regulatory frameworks that allow innovation to proceed

without stifling it, investment climates that attract capital to early-stage companies, intellectual property systems that protect African innovators, competition policies that prevent foreign platform monopolies from crushing domestic competitors, and education systems producing the technical talent the ecosystem needs.

Rwanda's technology policy environment has attracted particular attention as a model. The government has invested heavily in digital infrastructure, established clear and consistent digital policies, attracted major technology companies to base African operations in Kigali, and built a reputation for governance quality that has made Rwanda an attractive investment location despite its small market size — evident in Rwanda hosting Zipline's African operations and serving as a hub for drone regulation experimentation.

Nigeria's technology policy environment presents a contrasting picture: a vast market with enormous entrepreneurial energy, but inconsistent regulation, multiple taxation authorities creating compliance complexity, and a history of policy surprises that increase investment risk — exemplified by the Central Bank's 2021 decision to ban banks from servicing cryptocurrency exchanges, reversed the following year.

A Vision: Africa as a Global Technology Creator

The vision for African technology is not merely to use technology better. It is for Africa to be a global technology creator — a continent that produces software, AI systems, biotechnologies, clean energy technologies, and digital platforms that serve African needs and are exported to the world. This is not fantasy. The preconditions are being established: a rapidly growing pool of African software engineers and AI researchers, a technology ecosystem generating billions in investment, governments beginning to invest in digital infrastructure, and a young population that is digitally native and hungry for the tools to build a better Africa.

What is required to realise this vision? Investment in STEM education that reaches every African child, not just the urban elite. Regulatory frameworks that enable innovation while protecting consumers and communities. African venture capital that invests in African solutions for African markets rather than requiring startups to prove they can serve Western markets. Continental digital infrastructure — broadband, data centres, payment systems — that enables African digital businesses to operate at continental

scale without dependence on foreign platforms. And the cultural confidence — rooted in the technological heritage examined at the start of this lesson series — to believe African innovation is not derivative but original; not catching up but leading.

> *"The most radical thing an African can do in the twenty-first century is to build something. To create value. To employ people. To solve a problem that no one from outside Africa has bothered to solve because it does not affect them. Build. That is the revolution now."*
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> **— Adesina Olagunju, Founder, AiCE**

Key Takeaways

Genuine African technological sovereignty requires solving the infrastructure challenge — electricity, undersea cables, data centres — and building enabling policy environments like Rwanda's, alongside the STEM education, African venture capital, and continental digital infrastructure that would let African businesses operate at scale without foreign platform dependence. The vision is not incremental improvement but Africa as a global technology creator — and the preconditions for that vision are already being built by the generation this course exists to train.