

Uganda's Science, Technology and Innovation Bet is No Longer a Bet

STI is not a slogan. It is an industrial doctrine, funded, coordinated, and now unmistakably in motion.

For much of the past half-century, the economic story of the global south has been written in a narrow register: extract, export, import, repeat. Raw materials leave. Finished goods return. Value accumulates elsewhere. It is a pattern so persistent it has often been mistaken for destiny.

But history, when read carefully, tells a different story. Nations do not rise because they possess resources. They rise because they transform knowledge into industry, and industry into power. Uganda, quietly but deliberately, has begun that transformation.

At the center of this shift is a decisive break from orthodoxy. Science, Technology and Innovation (STI) is no longer treated as a peripheral sector, an appendage of academia or a talking point in policy documents. It has been recast as the organizing principle of the economy itself: funded at scale, coordinated at the highest levels of government, and deployed across tightly defined industrial value chains.

The ambition is not incremental. It is structural: a science-led "qualitative leap" toward a \$500 billion economy built not on extraction, but on invention.

And for the first time, the contours of that future are visible.

If there is a place where Uganda's industrial ambitions become tangible, it is in Jinja. There, Kiira Motors Corporation, once a university experiment, has evolved into a functioning automotive manufacturer. Its flagship product, the Kayoola electric bus, has already traversed 13,000 kilometers from Kampala to Cape Town and back, a journey that is a beacon of African renaissance.

But the buses are not the entire story. The ecosystem is.



Dr. Cosmas Mwikirize
Superintendent -
Industrial Value Chains
Development
Science, Technology and
Innovation Secretariat,
Office of the President

Uganda is no longer simply asking how to adopt technology. It is beginning to ask how to produce it. That distinction matters. Nations that produce technology shape markets. Those that do not, depend on them.

Around Kiira Motors, a lattice of suppliers, engineers, and manufacturers is taking shape. Battery assemblers, electronics firms, component producers. More than 80 players now populate Uganda's e-mobility landscape. Tens of thousands of electric motorcycles have been produced locally. Wiring harnesses, brake systems, and battery packs are no longer abstractions on an import list; they are products with a Ugandan provenance.

This is how industrialization happens. Not in a single factory, but in the dense web of capabilities that form around it. The endgame is not just to move people, but to move up the value chain, to become a net exporter of mobility itself.

Equally visible, is what Uganda calls the "Pathogen Economy."

It begins with a reframing. Disease is not only a burden to be managed. It is a biological reality that can anchor entire industries, if a country has the capacity to understand, manipulate, and ultimately commercialize it.

This is no small claim. Yet across laboratories and pilot facilities, it is beginning to take form. Companies such as Dei Biopharma, Microhaem, and Jena Herbals are building a domestic ecosystem in vaccines, diagnostics, and therapeutics. Uganda has developed multiple candidate vaccines, produced rapid diagnostic kits for diseases ranging from malaria to HIV and sickle cell, and deployed locally engineered PCR systems that cut testing costs dramatically during the COVID-19 pandemic.

The anti-tick vaccine offers a glimpse of the model at scale: identify a systemic

biological constraint, in this case, livestock disease that drains billions from the agricultural economy, then engineer a solution that does more than treat the problem. It creates a new industrial capability.

The implications extend beyond health. This is about sovereignty in biotechnology: the ability to design, produce, and scale medical solutions without external dependency.

Uganda's ambitions are not confined to the ground.

In aeronautics and space, the country is taking its first measured steps into a domain long monopolized by advanced economies. The recent launch of ClimCam, a climate observation payload developed in partnership with regional collaborators, marks a subtle but significant shift.

While still nascent, this value chain is strategic. Satellite data underpins agriculture, infrastructure planning, and national security. Control over these capabilities shifts a country from data consumer to data producer. Globally, space is no longer just about exploration. It is about information, and Uganda is positioning itself to participate.

Beneath the more visible sectors lies a quieter layer of industrial capability: infrastructure innovation.

At the Engineering Development and Innovation Centre (EDIC) and similar facilities, Ugandan researchers are working on advanced materials, industrial prototyping, and nanotechnology. These are not consumer-facing breakthroughs. They are deeper than that. They are the substrate of industry. Countries that lead



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in manufacturing do not simply assemble products; they control the materials and processes that define them. Uganda's investment in nanotechnology and materials science suggests an awareness that long-term competitiveness depends on mastering these layers.

In Namanve and beyond, a different kind of factory is taking shape.

Firms like Lwera Semiconductors and Innovex are producing a growing range of consumer and industrial electronics: calculators, smartphones, power systems, and increasingly, smart infrastructure devices such as meters and water pumps. This is Uganda's entry into Industry 4.0+, not just automation, but localized innovation in digital manufacturing. The significance lies in capability accumulation. Each locally produced device reduces import dependence while building technical expertise in design, embedded systems, and production engineering. Over time, these capabilities compound.

But if the new economy is about creating entirely new sectors, the traditional economy is being re-engineered.

Agriculture, long the backbone of Uganda's economy, is undergoing its own quiet transformation. Enterprises like Apokor, Inspire Africa Coffee, and the Banana Industrial Research initiatives are pushing commodities beyond their raw form into processed, high-value products. Cassava becomes industrial starch. Coffee becomes branded exports. Bananas become bio-industrial inputs. This is where the abstract promise of STI meets everyday reality. When value addition happens locally,

income stabilizes. Losses shrink. Entire supply chains begin to reorganize around production rather than extraction. It is, in many ways, the most consequential shift of all.

Uganda is organizing an economy around value chains where science drives production and production drives growth. The approach reflects a lesson learned elsewhere: industrial transformation does not come spontaneously. It is engineered through policy, funding, and coordination. South Korea did it with electronics. Germany with automobiles. The United States with decades of R&D investment. Uganda, attempting its own version, adapted to its resource constraints, and opportunities.

The early signals are promising. The foundations are visible. But the decisive phase is ahead. Can prototypes become factories? Can innovation drive enterprises to become industries? Can public investment catalyze private capital at scale? Because in the end, the measure of success will not be innovation itself, but output: jobs created, imports replaced, exports expanded. These are questions that require all hands-on deck.

But undeniably, there is a shift underway. Uganda is no longer simply asking how to adopt technology. It is beginning to ask how to produce it. That distinction matters. Nations that produce technology shape markets. Those that do not, depend on them.

Uganda has chosen its path. It us between 30th April to 3rd May 2028, at Kololo Independent Grounds as we showcase its path.