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NEWSLETTER

TECHNOPOLICY AFRICA

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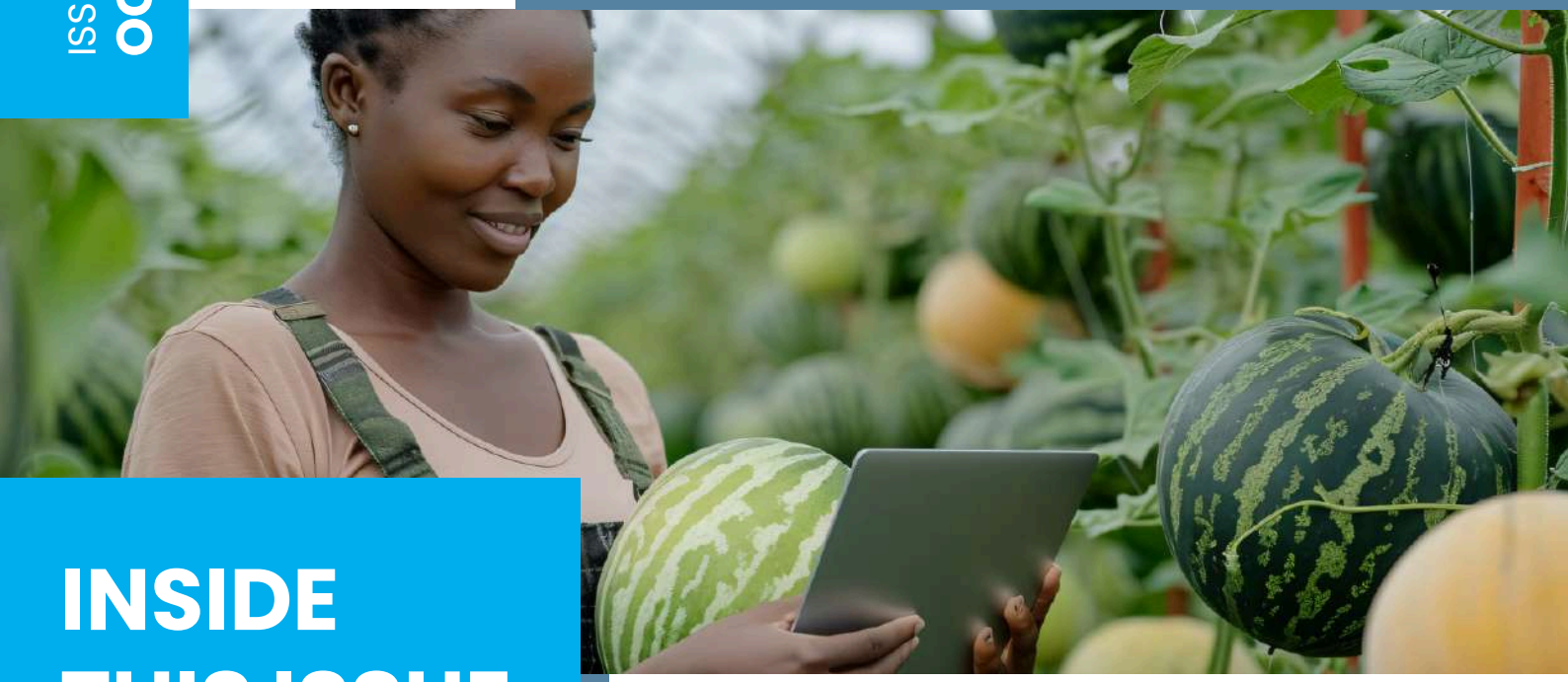

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Kevin Maina Irungu is the visionary founder of ChipuRobo Center, an impactful initiative dedicated to introducing children and young minds to the exciting world of robotics and technology. His work with ChipuRobo is focused on equipping the next generation with essential STEM skills, preparing them to be future innovators and leaders in the digital world.

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ATPS Vision:

To use Science, Technology, and Innovation (STI) as a means for achieving sustainable development in Africa

ATPS Mission:

To improve the quality of Science, Technology, and Innovation (STI) systems research, policy, and practice by strengthening the capacity for STI knowledge generation, dissemination, and use for sustainable development in Africa.

Overall Objective:

To build Africa's capability in Science, Technology, and Innovation for sustainable development

ATPS Motto:

Building Africa's capabilities in Science, Technology, and Innovation policy research, policymaking, and policy Implementation for sustainable development.

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Chairman's Message

Prof. Crispus Kiamba
Chairman, ATPS Board of Directors

I am pleased to contribute once again to the 27th edition of the Technopolicy Newsletter. It is encouraging to see the continued dissemination of innovative ideas, research outcomes, and policies that shape Africa's science, technology, and innovation (STI) architecture.

This quarter, like the ones before it, reflects ongoing efforts by the organization to engage stakeholders, strengthen networks, and promote inclusive approaches to technological advancement and policy reforms on the continent.

As the global landscape continues to evolve, so too does the importance of sound policy frameworks that keep pace with innovation. From digital transformation to climate resilience, the role of STI in shaping Africa's future has never been more critical. Under the leadership of our Executive Director, Prof. Nicholas Ozor, and the dedication of the ATPS team, we continue to serve as a platform for meaningful dialogue, bringing together diverse voices to inform decision-making and long-term planning.

I extend my appreciation to the ATPS leadership, members, partners, and all those who contribute to the Network's enduring relevance and impact. Your collective efforts help ensure that the conversation around technology and policy remains forward-looking, inclusive, and grounded in African perspectives.

Looking ahead, I encourage continued collaboration, transparency, and commitment to the principles that have guided ATPS over the last four decades.

Thank you for your continued trust, support, and collaboration.

Executive Director's Message

Prof. Nicholas Ozor
Executive Director, ATPS

As we release the 27th issue of the Technopolicy Newsletter, I reflect on a quarter defined by strategic momentum, continental leadership, and meaningful milestones for the African Technology Policy Studies Network (ATPS).

The period between July and September 2025 has not only deepened our impact but has also continued to position the ATPS as a leader in science, technology, and innovation (STI) research, policy, and practice in Africa.

I am honoured to share that I was formally inducted as a **Fellow of the African Academy of Sciences (FAAS)** under the Policy Category in April 2025. A total of 88 distinguished scholars were selected across the Classes of 2023 and 2024 from across the world. This recognition, particularly significant as one of only two Fellows elected in the "Policy" category, is a tribute to the collective rigor, dedication, and vision of the entire ATPS team, our partners, and the communities we serve. It affirms that evidence-based policy is not just an academic exercise; it is a powerful engine for equitable development.

This quarter, ATPS launched the **Nationally Determined Contribution (NDC) Implementation Index Platform**, a first-of-its-kind digital tool that enables African countries to track, compare, and improve their progress on Nationally Determined Contributions under the Paris Agreement. The platform (accessible at https://atps-ndcindex.africa) is already being used by 12 countries to strengthen transparency, inform policy adjustments, and foster peer learning. Its debut at the Africa Climate Summit 2025 was met with widespread acclaim, and it will serve as a critical accountability mechanism as we approach COP30. The NDC project is being funded by the African Development Bank (AfDB) and is implemented by the ATPS and its partners – the Pan African Climate Justice Alliance (PACJA) and the West African Green Economy Development Institute (WAGEDI).

Our leadership at the **Africa Climate Summit (ACS2)** and the preceding **Thirteenth Conference on Climate Change and Development in Africa (CCDA-XIII)** in Addis Ababa further cemented ATPS's role as a thought leader in climate governance. I was privileged to serve as a panelist at the **Africa Climate Change Fund (ACCF)** side event, where I emphasized the imperative of locally-led, data-driven climate action. ATPS also hosted a landmark side event on NDC tracking tools, a session that drew policymakers, researchers, and practitioners eager to harness innovation for accountability. Mr. Alfred Nyambane, our Programme Manager, played a vital role in shaping technical dialogues on Loss and Damage finance and institutional readiness.

In Nigeria, our **Strengthening the Capacity of the Extension System to use Proven Knowledge and Technologies to Sustain Equitable Locally Led Adaptation Among Smallholder Farmers (SCALE**, being funded by the **International Development Research Centre (IDRC)**, successfully convened capacity-building workshops for farmers, extension agents, and researchers in Abakaliki and Nsukka, all in Enugu State in the South East Nigeria. Participants gained practical skills in climate-smart agriculture, digital tools, gender inclusion, and how to access climate finance, all while co-designing solutions rooted in local realities. Our courtesy visit to the Vice Chancellor of the University of Nigeria, Nsukka, Prof. Simon Ortuanya, underscored the critical need for collaboration among relevant actors in scaling locally-led adaptation.

In September, Prof. Peter Azikiwe Onwualu and I represented ATPS at the Science Granting Councils Initiative's (SGCI) 10th Anniversary Forum in Accra, Ghana. As Principal and Co-Principal Investigators of the **SRIFA project - Strengthening the National Research and Innovation Funding Agencies in West Africa**, and with my role as a Technical expert in developing the STISA-2034, we ensured that West Africa's institutional strengthening priorities were embedded in the design of SGCI's Phase III. Our contributions on digital grant systems, gender-responsive programming, and policy coherence helped shape a roadmap that prioritizes African ownership and regional collaboration. Most importantly, our efforts and interventions saw the establishment of new Science Granting Councils/Funds and the strengthening of existing ones in selected West African countries.

We also marked a moment of profound loss with the passing of Prof. Cheikhou KANE, our esteemed National Chapter Coordinator in Senegal. A brilliant scholar, mentor, and champion of sustainable innovation, Prof. KANE's legacy in water treatment, local resource valorization, and intellectual property will continue to inspire our work. We extend our deepest condolences to his family, colleagues, students, and the broader Senegalese scientific community.

During the reporting period, ATPS also won a new grant from the IDRC. The META project aims at Mapping Emerging Technologies to Advance Inclusive Sustainable Development in Africa, Asia, and Latin America (META). It will be implemented within a 24-month period across the three continents. Looking ahead, ATPS remains steadfast in its mission to bridge science, policy, and society. From pioneering digital governance tools to strengthening national research systems and advocating for just transitions, our work is more relevant and urgent than ever.

I thank our donors, partners, national chapters, and the entire ATPS family for your unwavering commitment. Together, we are not just responding to Africa's challenges; we are shaping its future.

Technology Promotion in Africa and Emerging Geopolitical Opportunities

Dr. Chukwuemeka Uwanaka

By Dr. Chukwuemeka Uwanaka, PhD, School of Administration, Business & Management Sciences, African University of Science and Technology (AUST) Abuja, Nigeria

State of Technology in Africa

Sustainable financing plays a key role in the development of technology that supports socioeconomic development of countries. Studies by multilateral institutions such as the World Intellectual Property Organization (WIPO), which is a specialized agency of the United Nations (UN) have documented this critical role of finance in technology promotion (WIPO 2024 a).

While recognising the role of access to finance as a key component of technology promotion, there is also the need to assess how Africa and its 55 countries are faring in promoting technology. A review of the Global Innovation Index (GII) published by WIPO, provides comparative data on 133 countries of the world according to their innovation capacities (WIPO 2024 b). Within the GII, there is the ranking for Science and Technology innovation clusters around the world, which ranks clusters in countries, regions or cities according to the areas with the highest numbers of inventors and scientists globally (WIPO 2024 c). WIPO also has a Global Innovation Tracker (GIT), which provides an overview of the contemporary state of global innovation within the four stages of the innovation journey (WIPO 2024 d). The GIT shows the progression rate of technology, in the face of contending factors such as higher interest rates and geopolitical conflicts.

A common trend from the GII is that the top-ranking countries and economies on the index- largely in North America, Europe and parts of Asia, are also locations with the most thriving science and technology (S&T) clusters. The ranking of many African countries in the lower part of the GII, GIT, and S&T index (WIPO 2025), can also be somewhat correlated with the continent's socioeconomic performance when measured by the Human Development Index (HDI) of the United Nations Development Programme (UNDP 2025). The HDI, which assesses and ranks countries according to health, education and economic factors (UNDP 2024), also shows a similar pattern in rankings between countries with high technology index ranking and human development.

As technology facilitates industrial development, the Competitiveness Industrial Performance Index (CIP), which is an index designed by the United Nations Industrial Development Organization (UNIDO) to quantify the performance of countries' industrial competitiveness (UNIDO 2025), is another framework for assessment. The CIP shows a similar patten- which is top-ranking countries on the CIP, which are mostly in North America, Europe and parts of Asia, also rank highly on the WIPO GII and UNDP HDI. Africa ranks lowly on these indexes, hence the need to explore feasible opportunities for technology promotion, industrial competitiveness, and socioeconomic development.

How Leading Technology Countries Did It

To help determine how other countries finance technology promotion, economic history will be a guide. A lot of the leading technologies that have been developed in recent decades such as semiconductors, the internet, satellite technology, radar technologies, aviation, biotechnology and nuclear science, have been developed in countries such as the United States (U.S.), and largely funded by government through government agencies such as Defense Advanced Research Projects Agency (DARPA), and industry partners such as Bell Laboratories of AT&T (Gertner 2013) (DARPA 2025).

A key point to note is that technology-based organisations such as Bell Laboratories prioritized research and development (R&D) in areas where funding was available, such as when U.S. military interest in communications tools and and satellite technology for the prosecution of Second World War (WW II) led to increased U.S. government funding. The regulated monopoly that AT&T was, also ensured that the lab's R&D in telecommunications technology was well funded (Gertner 2013).

WW II and its aftermath such as the Cold War, were not just major geopolitical events, they provided opportunities that contributed to the U.S. eventually becoming the most dominant technology innovation country, and the world's largest economy. A lot of the technology-based R&D that the U.S. government funded to win the war had dual-purpose use- meaning they could be used for both military and civilian economic purposes, while industrial policy was designed to encourage wartime industries to remodel to civilian purposes.

The U.S. also utilized some other geopolitical opportunities arising from WW II in its quest for technology advancement and future geopolitical advantages, especially in the area of attracting skilled human capital. The program originally called Project Overcast, then Project Paperclip- but more commonly known as 'Operation Paperclip', was initiated by the government at the end of WW2, which brought thousands of German and Austrian engineers, scientists, and technicians- many with Nazi pasts and affiliations that had to be suppressed, to the U.S.

This was as a means of transferring superior or competitive Third Reich Nazi technological knowledge, especially in the areas of aircraft, rockets, and missiles. With Dr. Wernher von Braun as one of the more famous émigrés, they helped the U.S. launch V-2 rockets, played major roles in U.S. Army's nuclear-armed ballistic missile development, and helped launch the first U.S. satellite, Explorer I. Dr. Braun's division of the Army Ballistic Missile Agency was transferred to a newly created National Aeronautics and Space Administration (NASA) in 1960, while the Germans led in the development of the Saturn rockets that put Americans on the Moon in 1969 (Neufeld 2023) (Watkins 2014).

Beyond post-WW2 geopolitics driven migration, the U.S. has also utilized immigration policies and laws such as the H1-B Visa category from the Immigration Act of 1990, to attract top tech talent, especially in mathematics, engineering, technology, and medical sciences, which supports the technology, socioeconomic development and global competitiveness of the U.S. (American Immigration Council 2024) (USCIS 2025) (USDOL 2025).

In Asia, many of the countries that have advanced technology sectors and rank highly on the GII, such as China, Taiwan, South Korea and India, leveraged on geopolitical opportunities to develop their tech sectors. While China's nuclear technology was developed with Soviet expertise as part of Cold War politics, the U.S. did a lot of technology transfer to China, as a means of moving China away from Soviet/Russian collaboration during the Cold War (Pillsbury 2016). South Korea is another Asian country that leveraged the geopolitical opportunities from its alliance with the U.S. and western hemisphere countries after WW II, to develop not just its technology sector through technology transfer, but also to access western markets where Asian companies earned revenue that sustained tech R&D in their countries (Kim 2013). Very importantly, these Asian countries ensured that their tech sector and tech manufactured products met the demand of global markets, as they transformed into major exporting economies.

India, the world's most populous country and fifth largest economy (IMF 2025), is an example of a country that identifies with Africa as a part of the 'Global South', but has a substantially advanced technology sector. The evolution of China in recent decades into a geopolitical rival of the U.S. (Pillsbury 2016), has somewhat positioned India as a beneficiary of U.S. technology transfer and sector support. India and China have longstanding border disputes, with military casualties on both sides as recently as the June 2020 skirmishes, being part of both countries struggles for geopolitical influence in Asia (Marsi 2024).

The U.S. in supporting India as a counterbalance to China, has a 'New Framework for the India-U.S. Defense Relationship' 2005, the Defense Technology and Trade Initiative (DTTI) 2012, the India-U.S. Declaration on Defense Cooperation 2014 and Framework for the U.S.-India Defense Relationship 2015, with India designated as a U.S. Major Defence Partner in 2016. Due to its partnership designation, India was elevated to Strategic Trade Authorization tier 1 status in 2018, and therefore receives license-free access to a vast array of U.S. military and dual-use technologies. There is also have the Logistics Exchange Memorandum of Agreement (LEMOA), Communications, Compatibility and Security Agreement (COMCASA), and the Industrial Security Agreement (ISA) instituted, which enabled the Foreign Military Sales (FMS) and Direct Commercial Sales (DCS) processes that have led to U.S. defence trade with India grow from almost zero in 2008 to over $20 billion in 2020. India currently exports aircraft and helicopter parts to U.S. global defence majors such as Lock Heed Martin and Boeing, and also exports a lot of software and electrical equipment used for defence purposes to France.) (U.S. Department of State 2015) (U.S. Department of State 2014) (USDOD 2025) (Covington 2015)

Also, India is harnessing geopolitics opportunities in facilitating domestic semiconductor technology manufacturing through Taiwanese companies, despite China's known attitude to Taiwan under its 'One China' policy. They include a February 2024 deal with PSMC for chips wafer fabrication, and a deal with Foxconn in May 2025 to fabricate chips used in mobile phones, laptops, automobiles, and other consumer electronics (Butts 2025) (Thomas 2024) (Bhandari 2024).

From the scenarios explained, it becomes more obvious that beyond financing, geopolitical opportunities were also a significant factor for technological development and promotion in the countries with some of the most advanced technology sectors in the world. However, was funding the prerequisite factor, or was it the geopolitical scenarios which emerged post WW II, that became the main determinant in technology promotion? Or was it both finance and geopolitics?

Economy as Structural Inhibition for Africa

In attempting to answer the question on whether finance or geopolitics was the most determinant factor for technology promotion, as a means to recommending appropriate policies for tech promotion in Africa, there is need to assess the economies of Africa.

s/n	Political Unit/Country	GDP	Population	GDP Per Capita
1	Africa	$2.83 trillion	1.47 billion	$1,930
2	European Union	$19.991 trillion	450.3 million	$44,387
3	United States	$30.507 trillion	342 million	$89,105
4	China	$19.232 trillion	1.4 billion	$13,687
5	India	$4.187 trillion	1.42 billion	$2,878

Data Sources: IMF (2025), World Bank (2025)

From the table above, it shows that the economy of the African continent ranks lowly in comparison with top GII economies, when measured by gross domestic product (GDP). Per capita income of the continent stands at $1,930, compared to global average of $13,840. This suggests that many countries on the continent may lack requisite economic means to fund technology promotion comparable with other parts of the world. This ability to fund technology is further constrained by the high debt burden of many African countries, which led Pope Francis to commission the Jubilee Report of 2025 'A Blueprint for Tackling the Debt and Development Crises and Creating the Financial Foundations for a Sustainable People-Centered Global Economy' (Stiglitz and Guzman 2025).

With many African countries seemingly lacking the economic base and financial capacity to sustainably fund technology promotion, and given the history of how other countries used geopolitical events for technology promotion, are there geopolitical opportunities that African countries can harness for sustainable technology financing and promotion?

Globalisation and Geopolitical Opportunities for Feasible Technology Promotion in Africa

Globalization, which connotes the increasing interconnectedness of people and countries supported by economic flows (Vanham 2019), has been enhanced by technological advancements in aviation for faster travel, and faster digital communication. The faster movement of people across the globe also meant that health pandemics, such as the Covid-19 virus of 2019, whose origin is suspected to be from China, could spread across the world quickly.

The African Export-Import Bank (Afreximbank) in response to Covid-19 pandemic, launched its Pandemic Trade Impact Mitigation facility (PATIMFA) in March 2020 and the US$1.5bn Collaborative Covid-19 Pandemic Response Facility (COPREFA) in November 2020. While PATIMFA supported Afreximbank member countries in mitigating and managing the financial, economic and health effects of the virus, COPREFA supported African economies to manage commodity price shocks and procurement of medical supplies, with over $6.5 billion disbursed (Afreximbank (2021), Afreximbank (2020). From a technology promotion perspective, it can be argued that Afreximbank support could also spur R&D for vaccines and biotechnology, if well harnessed.

The conflict in Ukraine after its invasion by Russia in February 2022, is another example of how globalization causes economic and geopolitical effects across continents. The war led to sharp increases in food prices on the continent, with the African Development Bank (AfDB) estimating a shortage of at least 30 million metric tons of food, especially wheat, maize, and soybeans imported from both countries, due to the disruption of food supply chains. As a result, the AfDB launched the $1.5 billion African Emergency Food Production Facility (AEFPF) in May 2022, to support smallholder farmers in filling the supply gap, through certified seeds, and more access to agricultural fertilizers for rapid production of 38 million tons of food that should facilitate a $12 billion increase in food production in just two years (AfDB 2022). The AEFPF, plus the Technologies for African Agricultural Transformation (TAAT) initiative of 2018 that has delivered heat-tolerant wheat varieties to 1.8 million farmers in seven countries, increasing wheat production by 2.7 million metric tons worth $840 million as part of the AfDB' Feed Africa Strategy 2016–2025, may have provided some funded opportunity for agricultural technology promotion.

But the part of the Russia-Ukraine war that provides a major funded opportunity beyond the $1.5 billion by AfDB, is the $860 billion 'ReArm Europe Plan' of the European Union. The ReArm Europe Plan was presented by Ursula Gertrud von der Leyen, President of the European Commission (EC) on March 6, 2025 (European Commission 2025). Together with the White Paper European Parliament resolution on the Future of European Defence (2025/2565(RSP) of March 12, 2025, these policies are also driven by the geopolitical outcomes from the current government of the U.S., which has publicly stressed that the E.U. and North Atlantic Treaty Organization (NATO) countries, must spend more money on their defense sectors and military, to continue to receive adequate U.S. support especially with Russia's aggression (Bandow 2025) (Kington 2025).

The ReArm Europe Plan proposes $860 billion expenditure from 2025-2029 to significantly increase defence capabilities by EU member states, which is a significant increase in EU defense expenditure, rising from $147 billion in 2022 when Russia invaded Ukraine, to $355 billion in 2024. The policy plan will lead to the restarting of some defence manufacturing capabilities that had been discontinued since the end of the Cold War, but with concentration on seven key critical capability projects such as military mobility, drones and counter-drone systems, artificial intelligence (AI), quantum, cyber and electronic warfare, artillery systems and air & missile defence. The continental defence white paper aims to address defence sector capability issues, industrial competitiveness and investment needs, with details on industrial, innovation, procurement and production issues (Clapp et al 2025).

The March 2025 legal changes in Germany that allows the German government to spend more billions of euros in defence (Kinkartz 2025), and the outcomes from the 2025 NATO Summit in The Hague on June 24-25, 2025 where NATO Allies committed to investing 5 percent of GDP annually for defence and security-related spending by 2035 (NATO 2025), is another geopolitically driven opportunity for technology promotion in a globalized world. NATO countries will allocate a minimum of 3.5 percent of GDP annually by 2035 to resource core defence requirements and to meet the NATO Capability Targets, while 1.5 percent of GDP annually will be spent on critical infrastructure protection, defend networks, ensuring civil preparedness and resilience, innovation, and strengthened defence industrial base.

African governments, technology professionals and relevant R&D stakeholders will therefore be better placed if, if they can strategically harness the opportunities facilitated by geopolitical changes, to participate in the ReArm Europe $860 billion plan, the estimated $150 billion more Germany will be spending on defence, and the 5 percent of GDP increase in defence and related technology industries that NATO countries have committed to spend.

Possible Multilateral frameworks of Technology Promotion for Africans

In trying to ascertain official platforms for such technology collaboration, especially in funded areas such as the EU and NATO defence plans, it is fortuitous that the EU recognizes the value of multilateral human and government cooperation in developing excellent science, research and technology for solving contemporary global challenges. Through its executive arm, the European Commission, the EU adopted the 'Communication on the Global Approach to Research and Innovation' in May 2021, which serves as European strategy for international scientific cooperation in a changing world (European Commission 2021).

The EU highlights Science Diplomacy through promoting multilateralism, openness and reciprocity in its cooperation with Africa and other continents as essential in using research and innovation for more strategic international relations, and for foreign and security policies that are informed by the best possible evidence. The Council of the EU advocated for the elaboration of a 'European Science Diplomacy Agenda', and for consolidating the role of science in EU Delegations, with the European Commission and European External Action Service tasked with delivering the Agenda (Council of the European Union 2021) (EEAS 2021). The collaboration framework can be somewhat extended to harness the increased spending in NATO, given that 23 out of the 32 NATO member countries are also EU members (NATO 2024).

From a broad continental perspective, the African Union (AU) can therefore utilize the platform of Global Approach to Research and Innovation, and the European Science Diplomacy Agenda to initiate deliberations on Science Diplomacy with the EU, through the Delegation of the European Union to the African Union, to officially signify the intention of African countries and its STI ecosystem, to participate in the science, technology and innovation activities of defence industrial development in support of the ReArm Europe Plan. This initiative can also support relevant EU countries in meeting their NATO Capability Targets, and annual plan commitments demonstrating success in project objectives. In initiating this partnership, the AU will also be meeting many of the seven aspirations of the AU's Agenda 2063 (AU 2025).

From this broad pedestal, different African countries, STI communities, the academia, think tanks and other stakeholders can then decide to either converge efforts around the six sub-regional groupings of West Africa, East Africa, Southern Africa, Central Africa, North Africa and diaspora- many of which also have official EU Delegations, or to embark upon science diplomatic efforts individually, and determine the exact areas of beneficial R&D cooperation. With that, there is a focus on funded R&D areas, whose dual-purpose uses will also be beneficial to Africa in climate management, biotechnology and conflict prevention. Some of the more obvious ones in the plan include cybersecurity, satellite/space research, and minerals research, which Africa can demonstrate some level of capacity in.

In line with this, existing projects and programs designed to strengthen STI ecosystems on the continent such as the 'Strengthening Research and Innovation Agencies'(SRIFA), and the $2.5 billion 'Sankore Project' worth $2.5 billion for boosting science, technology, and innovation (ST&I) ecosystems in West Africa (UNESCO 2025), should have defence related activities as part of their major focus. Producing what is in economic demand beyond Africa allows for return on investment, and revenues that can be reinvested in dual-purpose technologies for Africa development as well. That way, Africa plays a more integral part in the fourth industrial revolution.

In Nigeria, there is Briech UAS, which is a leading manufacturer of unmanned aerial vehicles, and owner of Africa's biggest drone manufacturing facility, with technology capabilities in robotic aerial surveillance (Briech UAS 2025). The company produces combat drones and surveillance devices for militaries on the continent, which can also be a good fit for European defence. One of the parties which Europe is defending itself against, is leveraging relations with other countries to speed up the production of combat drones and artillery (Manuel 2025) (Cranny-Evans 2025). Therefore, Europe will be better served speeding up drone and ariel defence products and services from Africa.

Patterns with Technology, Development and Peace

Before concluding, it is also important to stress one more observation- a seeming correlation between countries with advanced technology sectors, poverty levels, and security. Most of the countries that rank highly on the GII, are also those with less state fragility as measured on the Fragile States Index (Fragile States Index 2024).

The pattern is also similar when measured for poverty on the Global Multidimensional Poverty Index (MPI). The Global MPI report intersects violent conflict data with multidimensional poverty data, for improved comprehension of their interlinkages across countries and over time. The primary data source for this MPI analysis is the Uppsala Conflict Data Program (UCDP), while sensitivity analyses were also run with the use of additional key conflict datasets.

It showed that MPI values incline to be much higher in conflict-affected settings, while poverty reduction is reversed, stagnant, or slower in in countries affected by prolonged conflict (UNDP 2024). Therefore, it may be safe to say that technology promotion not only potentially addresses some of the pressing economic challenges on the continent, but could positively impact in promoting peace and security in Africa.

What Can Be Done by Africa

In this essay, finance and geopolitics have been identified as some of the major factors that have facilitated the development of thriving science, technology and innovation ecosystems in the most advanced economies, especially in North America, Europe and parts of Asia. While the U.S. attained its global technological superiority largely through both government and private sector funding in the prosecution of the second world war, geopolitical events after war have also facilitated the development of strong technology clusters and economies in Europe and parts of Asia.

The Russia-Ukraine war, plus geopolitical policy outcomes from the current U.S. political leadership, has led to opportunities that Africa can harness for sustainable technology promotion. They Include the ReArm Europe Plan $860 billion of 2025, and the June 2025 mandate by NATO countries to increase defence to a minimum of 5 percent of GDP by 2035, which will lead to significant investments in defence-based science, technology and innovation, which Africa can leverage existing European Science Diplomacy initiatives to actively participate in.

Therefore, to achieve these sustainable technology promotion initiatives in Africa, the following are proposed;

1. Governments of Africa and the African Union should adopt a technology promotion policy framework that focuses on globally financed opportunities and geopolitical opportunities, that provides feasible pathways for technology development on the continent.
2. The leadership of the African Union should utilize the platform of Global Approach to Research and Innovation, and the European Science Diplomacy Agenda, to work with the European Union in officially determining areas of research, science and technology that Africa's technology ecosystem can participate in, as part of the $860 billion ReArm Europe Plan. That way, there is a focus on funded R&D areas, whose dual-purpose uses will be beneficial to Africa.
3. The African Union should utilize the European Science Diplomacy platform to provide a pathway for Africa's technology ecosystem to NATO countries who are not path of the European Union.
4. The Science Diplomacy between both continents be delegated through existing diplomatic institutional frameworks, starting from the Delegation of the European Union to the African Union, and subsequently cascaded to other regions and countries through the Delegation of the European Union to Botswana and SADC for southern Africa, Delegation of the European Union to the Federal Republic of Nigeria and ECOWAS for West Africa, Delegation of the European Union to the United Republic of Tanzania and the East African Community for East Africa, among others.
5. The African Union should utilize the opportunities in the 'Declaration of the Global African Diaspora Summit' that makes the diaspora a region of the continent to harness opportunities for the Caribbeans to participate in the science diplomacy activities by utilizing African-Caribbean initiatives of Afreximbank, and also harness top diaspora and other tech talent who may be influenced by conservative immigration policies in western countries, through easier residency and citizenship pathways.
6. Given the importance of drones for contemporary European defense, existing African combat drone and robotic aerial surveillance companies such as Briech UAS should be promoted by African Union to the European Union, as part of the readily available opportunities for Science Diplomacy and defence technology cooperation.
7. STI promotion initiatives such as the Strengthening the Research and Innovation Funding Agencies program and the Sankore Project, should dedicate more attention to trends and geopolitical events that can provide opportunities for sustainable financing and technology promotion in Africa.

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Water Scarcity and Tech Solutions Innovations for Africa's Water Security

Dr. Nokuthula Ngcobo

Dr. Nokuthula Ngcobo is a hydrologist and climate resilience specialist at the University of Cape Town, whose research focuses on groundwater management, drought resilience, and community-led water governance in Southern Africa. She has contributed to IPCC assessments and advised the World Bank and UNDP on water innovation, bringing scientific rigor and policy insight to the forefront of Africa's climate adaptation efforts.

In 2025, over 418 million people in Sub-Saharan Africa lacked access to safe, reliable drinking water, according to UNICEF and WHO's Joint Monitoring Programme. From the arid plains of northern Kenya to the drought-stricken Western Cape of South Africa, water scarcity remains one of the continent's most pressing challenges. Climate change, rapid urbanization, aging infrastructure, and weak governance have deepened the crisis, yet a quiet revolution is underway. Across Africa, innovators, engineers, and policymakers are deploying a new wave of technologies and strategies to secure water for communities, agriculture, and industry.
This is not just about survival. It's about resilience, equity, and reimagining how Africa manages its most vital resource.

The Scale of the Crisis
Africa is the second driest continent after Australia, but it holds 9% of the world's renewable freshwater resources enough to meet demand if managed effectively. Yet, only 5% of renewable water is currently utilized, according to the African Development Bank (AfDB). Uneven distribution, pollution, and inefficient use mean millions face chronic shortages.

In 2023, Cape Town narrowly avoided "Day Zero", a scenario where municipal taps would run dry, while Nairobi's residents endure erratic supply, with some areas receiving water only once a week. In rural Ethiopia and Somalia, prolonged droughts have displaced hundreds of thousands. Meanwhile, agriculture, the largest water user on the continent loses up to 60% of irrigation water due to outdated methods, says the Food and Agriculture Organization (FAO).

The human cost is immense. Women and girls walk an average of 6 kilometres daily to fetch water in some regions, time lost to education and economic opportunity. Contaminated water contributes to over 300,000 child deaths annually from diarrheal diseases, UNICEF reports.
But amid these challenges, innovation is taking root.

Desalination Turns Seawater into Lifelines
Coastal cities are turning to desalination to tap the ocean's vast potential. In Nairobi, where rainfall is unpredictable and groundwater is overexploited, the Kenyan government is piloting a solar-powered desalination plant in Lamu, designed to serve 10,000 people daily. The system, developed by local engineers in partnership with the United Nations Environment Programme (UNEP), uses reverse osmosis powered by photovoltaic panels, cutting energy costs and emissions.

South Africa has gone further. The Sedgefield Desalination Plant in the Western Cape, commissioned in 2022, produces 1.5 million litres per day, supplying homes and farms during dry seasons. While large-scale desalination remains expensive, modular, solar-driven units are proving viable for small communities.

Smart Irrigation Delivers Precision Farming for a Thirsty Continent

Agriculture accounts for 70% of freshwater withdrawals in Africa. Yet much of it relies on flood irrigation, which is inefficient and wasteful. Enter smart irrigation.

In Makueni County, Kenya, smallholder farmers are using Tulaa's smart irrigation kits, which combine drip lines, soil moisture sensors, and mobile-based weather forecasts. The system reduces water use by up to 40% while increasing yields. Farmers receive alerts via SMS when crops need watering, eliminating guesswork.

In Morocco, the government's Green Morocco Plan has invested over $1 billion in drip and sprinkler systems, covering more than 100,000 hectares of farmland. The results? Higher productivity, less water waste, and greater drought resilience.

These systems are now being adapted for sub-Saharan Africa. Startups like SunCulture (Kenya) and Hello Tractor (Nigeria) integrate IoT sensors and pay-as-you-go solar pumps, enabling farmers to irrigate efficiently, even without a grid connection.

Rainwater Harvesting Revives Ancient Wisdom with Modern Design

Rainwater harvesting is not new. Communities across Africa have collected runoff for generations. But today's designs are smarter, scalable, and integrated into urban planning.

In Kampala, Uganda, the NGO Water for People has installed smart rainwater tanks in schools and clinics. These tanks, equipped with sensors, monitor water levels and quality in real time, sending data to maintenance teams via mobile networks. When a tank runs low, alerts are triggered, ensuring no child goes without water.

In Dodoma, Tanzania, the capital city's master plan now mandates rainwater harvesting for all new public buildings. Rooftop catchments feed storage tanks that supply non-potable water for cleaning and gardening, reducing pressure on municipal supplies.

Wastewater Treatment Transforms Waste into a Resource

Africa generates over 22 billion cubic meters of wastewater annually, yet less than 10% is treated, according to the World Bank. The rest pollutes rivers, lakes, and aquifers. But a shift is underway.

In Kigali, Rwanda, the Kimihurura Wastewater Treatment Plant uses a hybrid system of anaerobic digestion and constructed wetlands to clean sewage. The treated water is reused for urban farming and landscaping. The biogas produced powers the facility, making it energy-neutral.

In Accra, Ghana, the Sakumono Wetlands Project treats 30,000 cubic meters of wastewater daily using natural reed beds. The project, supported by the European Union, has reduced pollution in the Kpone River and created green jobs.

These models show that wastewater isn't waste, it's a resource. Treated effluent can irrigate crops, recharge aquifers, or even be purified for drinking. As Dr. Amina Jalloh, a hydrologist at Freetown's Water and Sanitation Authority, puts it: "The future of water security lies in closing the loop."

Policy Interventions Bridge Technology and Governance

Technology alone cannot solve the water crisis. It must be matched with strong policy.

The African Union's Agenda 2063 calls for universal access to clean water and sanitation by 2030. To achieve this, countries are reforming water governance. In Nigeria, the Federal Ministry of Water Resources launched the National Water Resources Bill 2024, establishing a unified regulatory framework for water allocation, pollution control, and infrastructure investment.

Meanwhile, the Southern African Development Community (SADC) has adopted a Regional Water Policy that promotes transboundary cooperation on shared rivers like the Zambezi and Orange. Joint monitoring, early warning systems, and conflict resolution mechanisms are now in place.

At the local level, cities are adopting water-sensitive urban design. In Addis Ababa, green roofs, permeable pavements, and stormwater retention basins are being integrated into new developments to reduce runoff and recharge groundwater.

The Road Ahead

Africa's water future is not predetermined. It will be shaped by choices today about investment, innovation, and inclusion.

Solar-powered desalination, smart irrigation, rainwater harvesting, and circular wastewater systems are proving that technology can work at scale. But success depends on more than gadgets. It requires community ownership, gender-inclusive planning, and political will.
Women, who bear the brunt of water collection, must be central to decision-making. Youth and local innovators need funding and mentorship. And governments must prioritize water not as a cost, but as a foundation for health, food, and economic security.
As climate uncertainty grows, Africa has an opportunity: to leapfrog outdated models and build a water-secure future, one drop at a time.

Bridging the Digital Divide with Policies for Inclusive Connectivity in Rural Africa

Angela Wamola

Angela Wamola is a technology policy researcher and digital inclusion advocate based in Nairobi. With over a decade of experience in ICT research, she works with Research ICT Africa to advance evidence-based policies that expand internet access for underserved communities across the continent. Her work focuses on rural connectivity, gender equity in digital access, and the role of community networks in closing the digital divide.

In a classroom in Turkana County, northern Kenya, students huddle around a single tablet, streaming a science lesson over a patchy 3G connection. In a health clinic in rural Malawi, a nurse waits hours for a signal to send a patient's diagnostic data. These are not isolated incidents. Across rural Africa, millions remain on the wrong side of a deep digital divide.

While urban centres enjoy growing connectivity, over 60% of people in Sub-Saharan Africa still lack internet access, according to the International Telecommunication Union (ITU, 2024). For rural communities, the gap is even wider; less than 25% are online, compared to 55% in urban areas. This isn't just about slow speeds or poor coverage. It's about equity, opportunity, and who gets left behind in Africa's digital transformation.

The good news? A new wave of technologies, community-led initiatives, and forward-thinking policies is beginning to close the gap one village, one school, one network at a time.

The Cost of Exclusion

The digital divide isn't just a technical challenge. It's a barrier to education, healthcare, financial inclusion, and democratic participation.

In 2023, the World Bank found that every 10% increase in broadband penetration in Africa can boost GDP growth by 0.5–1.1%. Yet, in countries like Niger and South Sudan, internet penetration remains below 15%. High costs, lack of infrastructure, and low digital literacy are key drivers

A smartphone and one gigabyte of data can cost more than 20% of the average monthly income in some countries, far exceeding the UN's affordability target of 2%. And even when devices are available, many rural users, especially women, the elderly, and non-literate populations, lack the skills to use them effectively.

Satellite Internet Reaches the Unreachable

Traditional fiber and mobile networks struggle in remote, sparsely populated regions. Enter satellite internet.

In 2023, Starlink launched services in Kenya, Nigeria, and Rwanda, offering high-speed broadband via low-earth orbit (LEO) satellites. In Turkana, schools and health centers are now using Starlink terminals to access telemedicine and e-learning platforms. While still expensive for individual households, community hubs funded by NGOs or governments, are proving effective.

Meanwhile, OneWeb, backed by the UK government and Bharti Global, is partnering with African telecom operators to expand coverage across the Sahel and Central Africa. In Malawi, a pilot project with the Ministry of Education is using OneWeb to connect 50 rural schools.

These systems are not perfect. Equipment costs remain high, and long-term sustainability depends on local ownership. But they are proving that no community needs to be offline.

Community Networks Build Connectivity from the Ground Up

Sometimes, the best solutions come from within.

In Uganda's Kasese District, the Kiwaka Community Network was built and is managed by local youth. Using wireless mesh technology and solar-powered base stations, they provide affordable internet to over 2,000 residents. Users pay a small monthly fee, which funds maintenance and digital literacy training.

This model is spreading. In South Africa, the Zenzeleni Networks cooperative led by the Mankosi community, offers internet and voice services at a fraction of commercial rates. The network is owned by the people, for the people.

The Internet Society (ISOC) has supported over 20 such community networks across Africa. Their research shows these networks achieve higher local trust, better affordability, and stronger digital inclusion than top-down models.

Affordable Devices and Local Content

Access isn't just about networks; it's about what people can afford to use.

In 2024, Huawei, Tecno, and Nokia launched sub-$50 smartphones tailored for African markets, with long battery life, dual SIM, and offline learning apps. In Ghana and Tanzania, governments are subsidizing devices for students and teachers through national digital education programs.

But a device is only as useful as the content on it. Too often, online platforms are in English or French, excluding millions who speak local languages.

Initiatives like Google's Project Lingua and Mozilla's Common Voice are helping change that. In Kenya, Kambeo, a local startup, has developed a Swahili-language mobile learning platform for farmers. In Ethiopia, radio stations are pairing FM broadcasts with USSD-based mobile content, bridging the gap between analog and digital.

These efforts show that digital inclusion must be linguistically and culturally relevant—not just technically functional.

Digital Literacy is the Missing Link

Infrastructure and devices mean little without skills.

In 2023, UNESCO launched the Digital Literacy for All campaign in six African countries, training teachers, health workers, and women's groups in basic digital skills. In Rwanda, the Smart Africa Alliance is integrating digital literacy into primary education, ensuring children grow up tech-confident.

But formal programs alone aren't enough. Peer-to-peer learning is proving powerful. Works such as the Beyond Computers YouTube series, which teaches digital tools through real-life African stories are a good example of this. The series gained traction not because it was polished, but because it was relatable. Viewers saw themselves in the content.

That's the key: digital literacy must be contextual, practical, and human-centered.

Policy Interventions Create an Enabling Environment

Technology and community action need policy support to scale.

The African Union's Digital Transformation Strategy 2020–2030 aims to connect 80% of Africans to broadband by 2030. To get there, countries are reforming regulations:

- Nigeria has established a Universal Service Provision Fund to subsidize rural connectivity.
- Kenya has reduced taxes on smartphones and allocated spectrum for community networks.
- Rwanda and Botswana have integrated digital inclusion into national development plans.

Meanwhile, the Alliance for Affordable Internet (A4AI) is pushing governments to adopt the "1 for 2" target: one gigabyte of data for no more than 2% of average monthly income.

These policies are working. Between 2020 and 2024, mobile internet prices in Africa dropped by 30%, according to the Alliance for Affordable Internet.

The Road Ahead

The digital divide in Africa is not insurmountable. It is being narrowed day by day, by innovators, educators, policymakers, and ordinary people who refuse to be left behind.

Satellite internet, community networks, affordable devices, and digital literacy programs are not standalone fixes. Together, they form a new model of inclusive connectivity: one that is decentralized, participatory, and rooted in local realities.

But technology alone won't close the gap. We need political will, investment in public infrastructure, and a commitment to equity. Most of all, we need to listen to rural communities; not as beneficiaries, but as co-creators of Africa's digital future.

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Kevin Maina Irungu the founder of ChipuRobo Center

Kevin Maina Irungu

In this issue, we feature Kevin Maina Irungu, the founder of ChipuRobo Center. Kevin Maina Irungu is the visionary founder of ChipuRobo Center, an impactful initiative dedicated to introducing children and young minds to the exciting world of robotics and technology. His work with ChipuRobo is focused on equipping the next generation with essential STEM (Science, Technology, Engineering, and Mathematics) skills, preparing them to be future innovators and leaders in the digital world.

Q As the founder and driving force behind Chipurobo, an initiative introducing children to robotics and technology, what was the inspiration behind starting it, and could you also share the story and meaning behind the name 'Chipurobo'?

A Ever since I was a kid in Nairobi, I'd scavenge old radios and discarded gadgets—anything with a circuit board—to see how they worked. I'd solder wires, jury-rig motors, and lose myself for hours watching a blinking LED come to life. That obsession with "how?" and "why?" stayed with me through school and into university. When I saw how that same spirit could ignite a classroom—kids' eyes lighting up as they built and programmed their first robot—I knew I had to scale it. "ChipuRobo" blends "chipu" (microchip in Kiswahili) and "robo" (robotics) to honor both our Kenyan roots and our hands-on, hardware-first approach.

Q Chipurobo focuses on hands-on engagement with STEM, robotics, and emerging technologies. Why is this practical, experiential learning approach so crucial for children, especially in the African context, compared to more traditional methods?

A Textbooks are great, but they can't replace the thrill of connecting that first motor or debugging code on a real circuit. Growing up, every time I made something work—often with half-broken parts—I learned resilience, creative problem-solving, and confidence. In Africa, where challenges often demand ingenuity, giving students the chance to tinker, fail, and build again cultivates exactly the mindset they'll need to innovate back home.

Q Your work also integrates sustainability practices, such as leveraging recycling for 3D printing. How does Chipurobo weave environmental consciousness into its technology education, and what kind of impact have you observed from this unique approach?

A I remember my first homemade robot: it had a motor from a toy car, gears 3D-printed from recycled plastic, and a camera scavenged from an old phone. We've formalized that spirit by turning PET bottles into 3D filament, sourcing local electronic parts, and designing kits that can be repaired or upgraded with easily available spares. Every time a student feeds us plastic waste to remake into robot parts, it's a lesson in circular thinking and resourcefulness.

Q Could you share a memorable success story or a particularly inspiring moment you've witnessed through Chipurobo's programs, illustrating the transformative power of robotics and technology for a child?

A In one CBD workshop, I met Yasmine, who'd never held a soldering iron before. Using our ChipuSMARS kit, she built a line-follower robot that could navigate her envirinment. When it worked on the first try, she jumped up and down, grinning from ear to ear. By the end of the session, she was teaching other students how to tweak the code to make the robot turn faster. That spark—born from simple parts and sheer curiosity—reminds me why we started ChipuRobo.

Q Chipurobo operates by collaborating with schools, educators, and tech organizations. What have been the most significant challenges in building these partnerships, and what strategies have proven effective in bridging the gap between innovative learning and existing educational systems?

A Early pilots ran into scheduling conflicts, limited budgets, and rigid curricula. I drew on my tinkering days—when I'd improvise with what I had—and worked side-by-side with teachers to map our modules onto the national CBC syllabus. By co-creating lesson plans and celebrating small wins (like a robot that actually moved!), we built trust and momentum, turning skeptics into champions.

Q How do these collaborations extend Chipurobo's reach and impact across different communities or regions in Africa? Are there specific geographical areas where Chipurobo has made a notable difference?

A To date, ChipuRobo has trained over 10,000 learners and 100 teachers across Kenya through a blended model of in-person workshops and our eKitabu LMS. We kicked off with the Microsoft AI & Robotics Program at the ADC Center (April 14–16), then made every lesson, tutorial video, and assessment downloadable—so any school can adopt our curriculum instantly.This combination of scalable online content plus targeted, hands-on support ensures that each new cohort of teachers and students gets the guidance they need to succeed.

Q In your view, what role do partnerships and a collaborative ecosystem play in accelerating technology adoption and fostering innovation among African youth?

A No tinkerer—or startup—thrives alone. By teaming up with schools, universities, hardware vendors, and NGOs, we recreate the collaborative workshops I grew up in. Teachers get training, students get reliable kits, and feedback loops keep improving everything—just like open-source communities do online.

Q Looking forward, what is your ultimate vision for Chipurobo's role in shaping the future of education and innovation for young people across Africa?

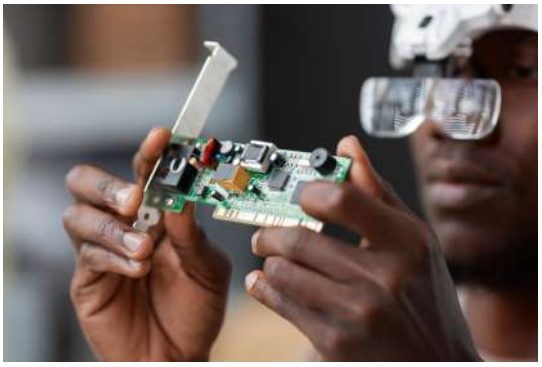
A Picture a future where every African classroom has an affordable robotics lab and AI curriculum at its fingertips. Kids everywhere—city and village—tinkering with local materials, building solutions for challenges they know best: clean water, smart farming, renewable energy. I want ChipuRobo to be the spark that lights those journeys.

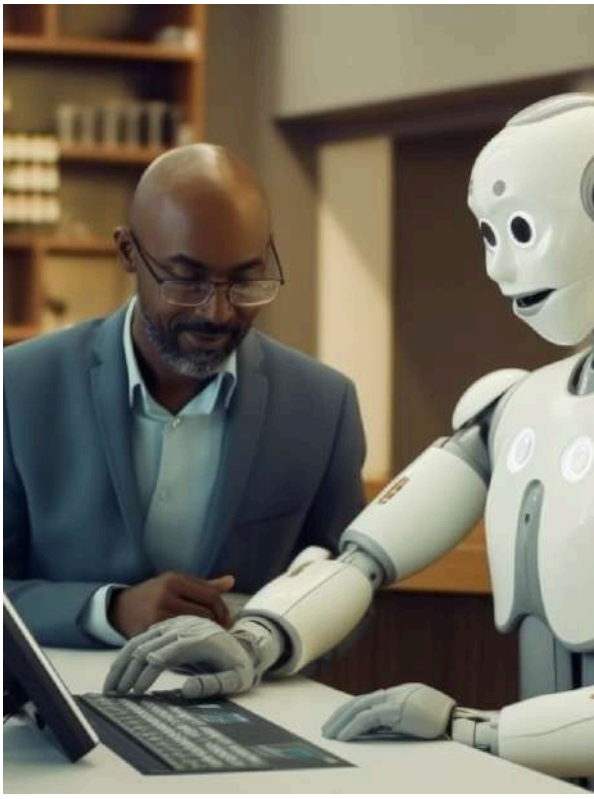
Q What are the biggest opportunities you see for African youth in the coming decade, particularly in fields related to robotics, AI, and sustainable technology?

A I see them at the forefront of AI-driven agriculture, distributed renewable energy systems, and frugal medical devices. With their grounded understanding of local needs and that hands-on "make-it-work" mentality, they'll craft innovations the world never saw coming.

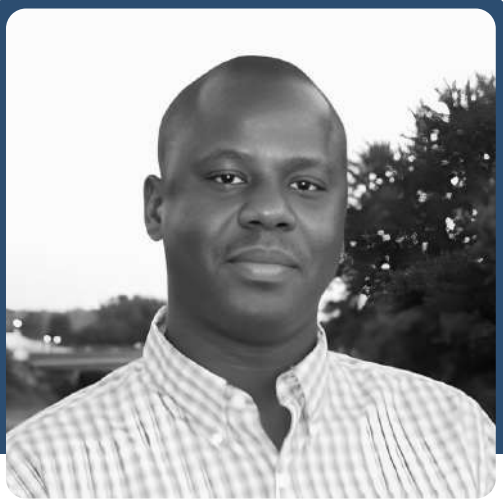
Q For policymakers and technology leaders in Africa, what one key action do you believe would most significantly support initiatives like Chipurobo and cultivate a robust pipeline of young innovators?

A Invest in practical STEM hubs and teacher upskilling—equip labs, train educators to mentor tinkering, and incentivize public-private partnerships with simple measures like tax relief for edtech providers. That foundation will unleash a generation of makers, builders, and problem-solvers across Africa.





IN MEMORIAM: HONORING THE LEGACY OF PROF. CHEIKHOU KANE, ATPS SENEGAL NATIONAL COORDINATOR AND VISIONARY SCHOLAR



PROF. CHEIKHOU KANE

It is with profound sadness that we announce the passing of Professor Cheikhou KANE, National Chapter Coordinator for the African Technology Policy Studies Network (ATPS) in Senegal, and a distinguished academic and researcher at Cheikh Anta Diop University in Dakar.

A dedicated scholar and innovator in the fields of Chemical and Environmental Engineering, Prof. KANE devoted his life to advancing science, technology, and sustainable development in Senegal and across Africa. His pioneering research in water treatment, valorization of local resources, and intellectual property not only addressed critical regional challenges but also set new standards for scientific excellence and practical impact.

Beyond his research, Prof. KANE was a passionate educator and mentor, shaping the minds of countless students and emerging researchers. He believed deeply in the power of knowledge to transform communities and was a tireless advocate for science-informed policy and innovation-driven development.

As a key leader within ATPS, he played an instrumental role in strengthening scientific collaboration, promoting evidence-based decision-making, and empowering African researchers to take center stage in global discourse. His contributions have left an indelible mark on our network and the broader STI (Science, Technology, and Innovation) ecosystem in Africa.

We extend our deepest condolences to his family, colleagues, students, and the entire Senegalese scientific community. His vision, integrity, and unwavering commitment to progress will continue to inspire our work.

Prof. Cheikhou KANE's legacy lives on—in the research he advanced, the lives he touched, and the future of African science he helped shape.

He will be greatly missed, but never forgotten.

Welcome to the Team: Calvince Ngaji, Research Officer, ATPS

Calvince Ngaji

The African Technology Policy Studies Network (ATPS) is pleased to welcome Calvince Ngaji as its new Research Officer. Calvince brings extensive experience in survey design, data management, and statistical analysis, with a strong passion for applying Artificial Intelligence (AI), Machine Learning (ML), and Deep Learning to enhance agriculture, food security, and socio-economic development. His previous work spans the Agrochemicals Association of Kenya (AAK–GROW) and the Ministry of Agriculture and Livestock Development, where he supported critical programs such as the Emergency Locust Response and Food Systems Resilience projects.

Calvince holds an MSc in Social Statistics from the University of Nairobi, a BSc in Applied Statistics with IT from Maseno University, and is currently pursuing a PhD in Biostatistics at Moi University and a Master's in Data Science at the University of Nairobi. He has trained organizations on data science tools, earned multiple certifications in research and project management, and presented at international forums. ATPS is excited to have him on board as we continue to advance science, technology, and innovation for sustainable development in Africa.

ATPS Secures A New Grant

Mapping Emerging Technologies to Advance Inclusive Sustainable Development in Africa, Asia, and Latin America (META)

The African Technology Policy Studies Network (ATPS) has received a new grant for an ambitious global initiative titled "Mapping Emerging Technologies to Advance Inclusive Sustainable Development in Africa, Asia, and Latin America (META)."

Funded by the International Development Research Centre (IDRC), the META project aims to identify and promote key emerging technologies that can drive responsible, gender-inclusive, and sustainable development across Sub-Saharan Africa (SSA), Asia, and Latin America.

Through this initiative, ATPS aims to identify promising innovations, develop regional capacities, and promote South–South collaborations that enable low- and middle-income countries (LMICs) to leverage the transformative potential of the Fourth Industrial Revolution (4IR) for equitable growth.

Working closely with regional partners and knowledge networks in Asia and Latin America, ATPS will ensure that the project's outcomes reflect local contexts, ethical standards, and inclusive approaches to technology adoption. The collaboration also reinforces ATPS's longstanding commitment to leveraging science, technology, and innovation (STI) for sustainable development and social inclusion across the Global South.

For more details on the META project and ongoing updates, please visit the official project website:
https://atpsnet.org/mapping-emerging-technologies-inclusive-sustainable-development/

ATPS Executive Director, Prof. Nicholas Ozor, honoured by the African Academy of Sciences

We are proud to announce that on April 2, 2025, our Executive Director, Professor Nicholas Ozor, was officially elected a Fellow of the African Academy of Sciences (FAAS) under the policy category—a prestigious and highly competitive honour that recognizes exceptional contributions to the advancement of Science, Technology, and Innovation (STI) across the continent.

The selection process, which began in 2023, involved rigorous evaluation and intense competition from leading experts across various scientific disciplines. Professor Ozor's election stands out particularly because he was one of only two individuals selected under the field of "Policy," a testament to his groundbreaking work and sustained impact on STI policy development in Africa.

In his acceptance, Professor Ozor dedicated the fellowship to the African Technology Policy Studies Network (ATPS), reaffirming his deep commitment to the organization's mission and the collective progress we continue to make in shaping Africa's innovation landscape. His recognition not only celebrates his personal achievements but also raises the profile of ATPS within Africa's scientific, academic, and policy communities.

This milestone underscores ATPS's growing influence in the region and highlights the vital role we play in fostering evidence-based policy, promoting inclusive STI development, and empowering future generations of African innovators and thought leaders.

We congratulate Professor Ozor on this well-deserved honour and look forward to greater accomplishments ahead as we continue to lead transformative change in Africa through science, technology, and innovation.

Championing a Just and Sustainable Transition: ATPS at the "Right Here, Right Now" Global Climate Alliance

On June 5, 2025, the African Technology Policy Studies Network (ATPS) was prominently represented at the "Right Here, Right Now Global Climate Alliance" event, where the Executive Director Prof. Nicholas Ozor delivered an insightful and impactful keynote presentation. His remarks spotlighted Africa's unique context and strategic pathways toward a just, inclusive, and sustainable transition to green economies.

Prof. Ozor highlighted the importance of balancing climate action with social equity, arguing that solutions must be designed to uplift, rather than marginalize, communities already facing systemic inequalities. Africa, he emphasized, must simultaneously pursue climate resilience and economic development—addressing critical challenges such as limited energy access, expanding informal economies, climate-sensitive agriculture, and the urgent need to create jobs for its growing youth population.

At the heart of his presentation was a call for a justice-centered transition framework. He emphasized four foundational pillars of justice—distributive, procedural, restorative, and recognition justice—while referencing national efforts like South Africa's just transition planning as an example of governance innovation. These principles, he argued, must guide policy formulation and implementation if Africa is to navigate a green transition that benefits all.

Prof. Ozor underscored the importance of green industrialization and economic diversification, positioning them as key levers for prosperity in Africa. He called for investment in sustainable industries, decarbonized economies, and enhanced value addition, pointing to developments in green hydrogen in Namibia as a beacon of regional progress.

In tandem, he advocated for significant investments in human capital, particularly in reskilling and upskilling the workforce to meet the demands of future green job markets. These priorities align with the African Development Bank's ambition to create 25 million green jobs by 2025.

A strong emphasis was also placed on social inclusion and participatory approaches, encouraging inclusive governance, social dialogue, and the integration of diverse knowledge systems. Prof. Ozor noted the importance of directing climate finance to communities leading their own adaptation and mitigation initiatives on the ground.

Technology was presented as a powerful enabler for sustainability. The Executive Director shared how tools like artificial intelligence, blockchain, and digital platforms can enhance climate forecasting, optimize renewable energy usage, and promote transparent climate finance tracking. Africa's expanding circular economy, such as South Africa's waste-to-resource efforts, and the continent's blue economy potential—exemplified by mangrove restoration in Kenya and aquaculture in Ethiopia—were highlighted as opportunities that, if properly governed, could unlock substantial green growth.

Prof. Ozor's presentation affirmed ATPS's continued dedication to evidence-informed, inclusive, and technology-driven climate solutions. His address served as a rallying call for Africa to seize the moment and lead in shaping a green future that is just, equitable, and transformative for its people and the planet.

Executive Director Participates in National Policy Validation Workshop on Biotechnology and R&D

On June 24, 2025, the African Technology Policy Studies Network (ATPS) was honored to be represented by our Executive Director, Professor Nicholas Ozor, at the Stakeholders' Validation Workshop on the Draft Revised National Biotechnology Policy and the Draft Research and Development (R&D) Policy in Kenya. The workshop was convened by the Office of the Principal Secretary in the State Department for Science, Research & Innovation under the Ministry of Foreign and Diaspora Affairs, Kenya.

The event brought together key actors from national and county governments, academia, research institutions, and industry in Kenya to review and validate critical national policy frameworks. These revised policies aim to strengthen Kenya's research agenda, promote cross-sector collaboration, and enhance the integration of biotechnology and R&D into national development strategies.

Professor Ozor's participation ensured that ATPS perspectives were actively included in these national discussions. He emphasized the importance of embedding innovation, cross-disciplinary research, and AI-driven technologies into the fabric of national STI strategies. His contribution reinforced ATPS's commitment to supporting inclusive, forward-thinking policies that respond to Africa's complex development challenges while positioning science and technology as key drivers of sustainable growth.

This engagement reflects our ongoing dedication to policy influence and regional collaboration, particularly in shaping an enabling environment for STI to thrive across the continent.

ATPS Launches First-of-its-Kind NDC Tracking Platform at a Regional Policy Dialogue and Dissemination Workshop in Addis Ababa

In a landmark event held on 8–9 July 2025 in Addis Ababa, Ethiopia, the African Technology Policy Studies Network (ATPS), in partnership with the Ministry for Planning and Development, Ethiopia, hosted the NDC Regional Policy Dialogue and Dissemination Workshop. This pivotal convening brought together high-level policymakers, climate experts, and development partners from across Sub-Saharan Africa to assess and accelerate national commitments under the Paris Agreement.

The workshop was officially opened by H.E. Mr. Seyoum Mekonen, Ethiopia's Minister for Planning and Development, whose remarks set an ambitious and collaborative tone for the event. At the center of the discussions was the presentation of key findings from the innovative ATPS-led project titled:

"Building the Capacity of Selected Sub-Saharan African Countries to Effectively Measure Progress in their Nationally Determined Contributions (NDCs) Implementation Using Tracking Tools and Indexes."

This initiative, implemented in partnership with PACJA and WAGEDI, and supported by the African Development Bank's Africa Climate Change Fund (ACCF), stands out as a pioneering, data-driven approach to climate governance in Africa. The project supports 12 countries namely: Botswana, Côte d'Ivoire, Ethiopia, Ghana, Kenya, Namibia, Nigeria, Sierra Leone, Tanzania, Uganda, Zambia, and Zimbabwe, equipping them with technical tools, capacity building, and strategic support to track, report, and optimize their climate actions.

The highlight of the event was the official launch of the Online NDC Implementation Index Platform, now live at https://atps-ndcindex.africa. This state-of-the-art web-tracking tool enables countries to assess their performance in five key NDC components namely: Governance, Finance and Technology Transfer, Adaptation, Mitigation, and MRV (Monitoring, Reporting & Verification). Designed to simplify complex climate data and support evidence-based policy decisions, the tool also promotes transparency, peer learning, and inclusive progress across the continent.

Participants from the 12 countries had the opportunity to engage directly with the platform—exploring its features, offering feedback, and proposing enhancements to ensure it remains scalable, adaptable, and contextually African. The discussions that followed were energetic and insightful, reinforcing a central message: when policy speaks the language of data, equity, and inclusion, it transforms from promise to power.

Prof. Nicholas Ozor, ATPS Executive Director, noted, "This is not just a tracking tool; it's a tool for transformation. Africa's climate future must be anchored in homegrown solutions that are inclusive, reliable, and action-oriented. The NDC Index is a step toward that future."

As countries begin to revise and submit their next round of NDCs (NDC 3.0), the ATPS and its partners remain committed to ensuring that ambition is matched with measurable, equitable action. This project is a clear demonstration of African innovation, ownership, and leadership in global climate accountability.
To explore the NDC Web-Tracking Tool, please visit: https://atps-ndcindex.africa

ATPS Champions Technology and AI as Catalysts for Africa's Development at Afreximbank Annual Meetings (AAM2025)

The African Technology Policy Studies Network (ATPS) made a notable contribution to the **African Export-Import Bank (Afreximbank) Annual Meetings (AAM2025)** held from June 26–27, 2025, in Abuja, Nigeria. The event brought together global and continental leaders to reimagine Africa's economic future, with discussions centered on harnessing technology, innovation, and finance to accelerate sustainable development.

Representing ATPS, Prof. Nicholas Ozor, the organization's Executive Director, was among the key speakers and thought leaders at the event. Delivering an address titled "Technology Advancement and Artificial Intelligence: Pathway to Africa's Socio-Economic Development," Prof. Ozor emphasized that artificial intelligence (AI) is not merely a technological trend but a strategic imperative for the continent's transformation.

He highlighted practical AI applications across critical sectors:

- Agriculture – using AI for precision farming and supply chain optimization to strengthen food security.
- Healthcare – leveraging AI in diagnostics, drug discovery, and healthcare delivery.
- Education – advancing personalized learning and access to quality education through AI tools.
- Financial Inclusion – applying FinTech innovations to expand access to financial services.
- Manufacturing – integrating AI and automation to boost industrial productivity and competitiveness.

Prof. Ozor underscored the importance of robust policy frameworks, human capital development, and digital infrastructure as foundational pillars for responsible AI growth. He also called for Pan-African collaboration to ensure equitable access to technological resources and knowledge sharing across the continent.

Following his presentation, Prof. Ozor was interviewed by Sami Olatunji of The Punch, where he expanded on ATPS's vision and ongoing initiatives to leverage technology and AI in addressing Africa's development challenges and empowering youth.

ATPS's active participation in AAM2025 reaffirmed its commitment to advancing Science, Technology, and Innovation (STI) as enablers of inclusive, sustainable growth. Through its leadership and thought partnership, ATPS continues to position technology and AI as essential drivers for realizing Africa's socio-economic aspirations.

ATPS Advances Green Transition Coordination at African Network of Centres of Excellence Forum

On June 17, 2025, the African Technology Policy Studies Network (ATPS), represented by Research Officer Wentland Muhatiah, participated in the African Network of Centres of Excellence for Disaster Risk Reduction Forum held at the RCRMD Campus in Nairobi. The forum brought together key stakeholders from across the continent to discuss strengthening institutional capacities and improving access to risk information for early warning and early action (EW/EA).

During the session, ATPS presented its ongoing initiative, implemented in partnership with CIMA, DT-Global, and AESA, titled "Technical Support to the Coordination of the Scientific and Technological Support to the Regional Centres of Excellence Related to Green Transition." The presentation underscored the consortium's core objective of enhancing cross-sectoral and cross-regional coordination to address Science, Technology, and Innovation (STI) challenges connected to Africa's green transition.

ATPS emphasized the importance of aligning the efforts of Networks of Excellence, private sector players, and research institutions to create a more resilient and innovative STI ecosystem. A call was made for Networks of Excellence (NoEs) to contribute datasets to the already-developed knowledge management platform, fostering data-driven decision-making and knowledge sharing across the continent.

Key outcomes from the engagement included the development of an effective programme coordination framework, a strengthened science-policy interface, and the operationalization of a knowledge management system to support the green transition.

However, challenges in addressing all four thematic areas—oceans, biodiversity, agroecology, and energy—within the current scope and resources were acknowledged. It was recommended that discussions be held with project lead Pietro to revisit and potentially revise the scope of work for optimal delivery.

The forum was a strategic opportunity for ATPS to reaffirm its commitment to advancing STI solutions that support disaster risk reduction and climate resilience across Sub-Saharan Africa.

ATPS Launches Capacity-Strengthening Workshops in Nigeria Under the SCALE Project

Strengthening the Capacity of the Extension System to use Proven Knowledge and Technologies to Sustain Equitable Locally Led Adaptation Among Smallholder Farmers

Abakaliki & Nsukka, Nigeria — August 12–19, 2025

In a significant step toward empowering smallholder farmers and agricultural stakeholders in Nigeria, the African Technology Policy Studies Network (ATPS) successfully conducted a two-part capacity-strengthening workshop under the Strengthening the Capacity of the Extension System to use Proven Knowledge and Technologies to Sustain Equitable Locally Led Adaptation Among Smallholder Farmers (SCALE) project. Funded by the International Development Research Centre (IDRC), the initiative is part of the broader STEP-Change program aimed at transforming agricultural systems through locally-led, climate-resilient solutions.

The first leg of the training took place in Abakaliki, Ebonyi State (August 12–13, 2025), followed by the second session in Nsukka, Enugu State (August 18–19, 2025). Hosted in partnership with local institutions, including the University of Nigeria, Nsukka (UNN), the workshops brought together farmers, agricultural extension agents, and researchers for intensive, hands-on learning and collaborative planning.

Key Focus Areas of the Training included:
1. Climate-Smart Agriculture & Agroecology: Participants deepened their understanding of sustainable farming practices that enhance productivity while building resilience to climate change.
2. Digital Tools for Agriculture: Training included practical sessions on leveraging digital technologies to improve farm management, market access, and climate forecasting.
3. Co-Designing Agricultural Solutions: Emphasis was placed on fostering multi-stakeholder collaboration to ensure that innovations are context-specific and community-driven.
4. Gender Equality & Social Inclusion (GESI): Participants explored strategies to integrate GESI principles into agricultural planning and resource allocation, ensuring that women, youth, and marginalised groups benefit equitably from interventions.
5. Access to Climate Finance & Policy Advocacy: Sessions equipped stakeholders with tools to navigate funding opportunities and engage effectively in policy dialogues that support climate adaptation at the local level.

As part of its engagement in Nsukka, the SCALE project team, including Prof Nicholas Ozor (Principal Investigator), Prof. Michael Madukwe (National Coordinator), and Prof Joel Nwakaire (Project Officer) paid a courtesy visit to the Vice Chancellor of the University of Nigeria, Nsukka. The meeting underscored the importance of academic institutions as key partners in scaling locally-led adaptation and innovation. Both parties expressed commitment to deepening collaboration in research, training, and policy outreach.

The workshops mark a critical milestone in ATPS's mission to bridge knowledge gaps and strengthen the capacity of local actors to lead sustainable agricultural transformation. Feedback from participants highlighted the relevance of the content and the value of peer learning across regions.

ATPS extends its gratitude to IDRC for its continued support, and to all local partners, facilitators, and participants who contributed to the success of the training.

ATPS Takes Center Stage at Africa Climate Summit 2025: Championing Local Leadership, Data-Driven NDCs, and African Climate Solutions

Addis Ababa, Ethiopia — September 5–10, 2025

The African Technology Policy Studies Network (ATPS) played a pivotal role at the 13th Conference on Climate Change and Development in Africa (CCDA-XIII) and the Second Africa Climate Summit (ACS2), held in Addis Ababa from September 5–10, 2025. Representing the organization were Mr. Alfred Nyambane, Programme Manager, who participated in CCDA-XIII, and Prof. Nicholas Ozor, Executive Director, who joined Mr. Nyambane for ACS2 and led high-level engagements that positioned ATPS as a thought leader in climate governance, local adaptation, and data-driven policy tracking.

Held from September 5–7, CCDA-XIII served as the critical technical foundation for ACS2 under the theme "Empowering Africa's Climate Action with Science, Finance, and Just Transition." The conference brought together governments, researchers, civil society, Indigenous groups, youth, and the private sector to align Africa's climate agenda ahead of COP30 in Belém.

ATPS contributed to dialogues across the five thematic pillars, from climate governance and finance to just transitions and nature-based solutions, advocating for evidence-based, locally-led, and gender-responsive approaches to climate action. Mr. Nyambane actively engaged in sessions focused on institutional readiness and tracking Loss and Damage financing among other topical issues organized by various institutions and partners reinforcing ATPS's commitment to ensuring African priorities are grounded in data, equity, and innovation.

On September 8, Prof. Nicholas Ozor took the stage as a panelist at the African Climate Change Fund (ACCF) side event titled "Showcasing ACCF Project Results: Advancing Climate-Resilient, Low-Carbon Development Across Africa" at the African Development Bank Pavilion at the Addis Ababa International Convention Center.

Addressing a packed room of policymakers, donors, partners and practitioners, Prof. Ozor delivered a powerful intervention on "NDC Implementation Tracking using Tools and Indexes." He challenged the prevailing top-down model of climate planning and action and emphasized on utilizing locally developed tools for tracking implementation of NDCs and other climate actions.

The tool overall use is to ensure that countries use this information to measure their performance based on the targets they set and not necessarily the position they are in the ranking. Country and region cross learning was also encouraged.

His remarks sparked robust discussion on rethinking accountability, financing flows, and policy design to center communities in climate solutions, a message that resonated deeply with African delegates preparing for COP30.

On September 9, ATPS hosted one of the most anticipated side events of ACS2: "NDC Implementation Tracking using Tracking Tools and Indexes in Africa." The session convened policymakers, researchers, and development practitioners to explore how innovative monitoring tools are transforming climate accountability across the continent.

Attendees learned:

- How data-driven platforms are enhancing transparency and enabling real-time policy adjustments;
- Which African countries are leading in institutionalizing NDC tracking systems;
- How civil society and local governments can leverage these tools to hold national actors accountable.

The highlight of the event was the live demonstration of the ATPS NDC Implementation Index Online Platform accessible at https://atps-ndcindex.africa/

Why the NDC Implementation Index Platform is Groundbreaking:

1. First-of-its-kind continental dashboard tracking NDC progress across 12 African countries using 50+ indicators from policy coherence to finance disbursement and gender inclusion.

2. Interactive and open-access, allowing users to compare country performance, drill down into sectoral data, and download policy briefs.

3. Co-designed with local stakeholders, ensuring relevance to national and subnational decision-makers.

4. Feeds directly into global processes, providing African negotiators with evidence to demand fairer finance and stronger adaptation support at COP30.

ATPS's participation at CCDA-XIII and ACS2 2025 underscored its vital role as a bridge between science, policy, and grassroots action. From shaping the technical foundations of Africa's unified climate position to hosting high-impact dialogues and launching transformative digital tools, ATPS ensured that local leadership, gender equity, and data transparency remained at the heart of Africa's climate agenda.

As the continent prepares for COP30, ATPS's work particularly the NDC Implementation Index will serve as a critical instrument for holding governments and donors accountable, directing finance where it's most needed, and elevating African innovations as global models.

ATPS Leadership Played Key Role at SGCI 10th Anniversary Forum in Accra

Accra, Ghana — 15–19 September 2025

Prof. Nicholas Ozor, Executive Director of the African Technology Policy Studies Network (ATPS) and Principal Investigator for the Strengthening the National Research and Innovation Funding Agencies in West Africa (SRIFA) project, participated in the Science Granting Councils Initiative (SGCI) 2025 All Partners Forum and STISA-2034 Advocacy Meeting in Accra, Ghana. He was joined by Prof. Peter Azikiwe Onwualu, Co-Principal Investigator for SRIFA and President of the African University of Science and Technology (AUST) in Abuja, Nigeria.

The event marked the 10th anniversary of SGCI under the theme "SGCI @10: Marking a Decade of Partnership, Growth, and Transformation in Support of Africa's Development." Launched in 2015 with support from FCDO (UK), IDRC (Canada), NRF-SA (South Africa), Sida (Sweden), Norad (Norway), and DFG (Germany), the initiative has worked with 17 science granting councils across sub-Saharan Africa to strengthen research management, promote gender equality and inclusion, enhance policy engagement, and foster regional collaboration.

The week-long forum brought together council heads, international funders, African Union institutions, and development partners to review achievements from Phase II (2018–2025) and finalize the design of Phase III (2026–2030). The next phase aims to deepen capacity-building efforts to improve research and innovation outcomes, increase policy influence, and ensure greater African ownership of science, technology, and innovation (STI) systems.

The program was structured into three main segments. The first day featured closed-door discussions among council heads and funders to align on Phase III strategy. Days two and three opened to broader participation, showcasing lessons, success stories, and innovations in areas such as digital grant management, gender-responsive programming, and policy influence. The final two days, co-hosted by the African Union Commission and AUDA-NEPAD, focused on the role of science granting councils in implementing the Science, Technology and Innovation Strategy for Africa 2034 (STISA-2034), with emphasis on financing, regional coordination, and alignment with continental priorities in health, agriculture, energy, ICTs, and the environment.

Prof. Ozor's participation carried particular weight given his appointment as one of the experts involved in developing STISA-2034. His insights helped ensure that the perspectives and experiences from Africa especially those drawn from the ongoing SRIFA project, were integrated into the strategic discussions shaping the next phase of SGCI and the broader STISA-2034 implementation framework.

Together with Prof. Onwualu, he contributed to dialogues on institutional strengthening, policy coherence, gender inclusion, and digital transformation in research funding systems. Their inputs underscored the importance of context-specific capacity development and the need to embed national agencies within regional and continental STI ecosystems.

The forum also featured the launch of SGCI's 10th Anniversary Commemorative Magazine, which documents a decade of partnership and impact across Africa. It concluded with the adoption of a high-level communiqué and a roadmap for action, setting the direction for science granting councils over the next decade.

ATPS Highlights Progress in Responsible AI for Agriculture at the AI for Africa Conference

The African Technology Policy Studies Network (ATPS) showcased its leadership in advancing responsible and inclusive artificial intelligence (AI) at the **AI for Africa Conference**, held from September 30 to October 2, 2025, in Cape Town, South Africa. Organised under the AI for Development Africa (AI4D Africa) network, with support from Canada's International Development Research Centre (IDRC) and Swedish International Development Cooperation Agency (SIDA), the event convened policymakers, researchers, and innovators to discuss Africa-led AI solutions for sustainable development.

ATPS shared milestones from its successful coordination of the Responsible AI for Agriculture and Food Systems (AI4AFS) project and introduced its new phase, AI4AFS+, which aims to scale responsible, gender-inclusive innovations in agriculture. The initiative will assess the real-world effectiveness of AI tools, support inclusive technology design, and establish a pan-African Community of Practice to inform policy frameworks.

Two ATPS grantees—Dr. Hilda Manzi (Kenya) and Dr. Patrick Kwabena Mensah (Ghana)—presented AI innovations improving pest management and food security across Africa. Their work demonstrates how locally driven, ethical AI can empower smallholder farmers and promote gender equity. ATPS's participation, led by Prof. Nicholas Ozor, reinforced the organization's commitment to leveraging science, technology, and innovation (STI) to achieve sustainable and inclusive agricultural transformation in Africa.

Highlights from the NDC Regional Policy Dialogue and Dissemination Workshop held from 8–9 July 2025.

Highlights from the AI for Africa Conference held in Cape Town, South Africa, from 30 September to 2 October 2025.

Scenes from the ATPS Capacity-Strengthening Workshop under the SCALE project, held in Abakaliki and Nsukka, Nigeria, from August 12–19, 2025.

Moments from the Capacity-Strengthening Training under the STEP-Change SCALE Project, held in Abakaliki, Ebonyi State, Nigeria, from 12–13 August 2025.

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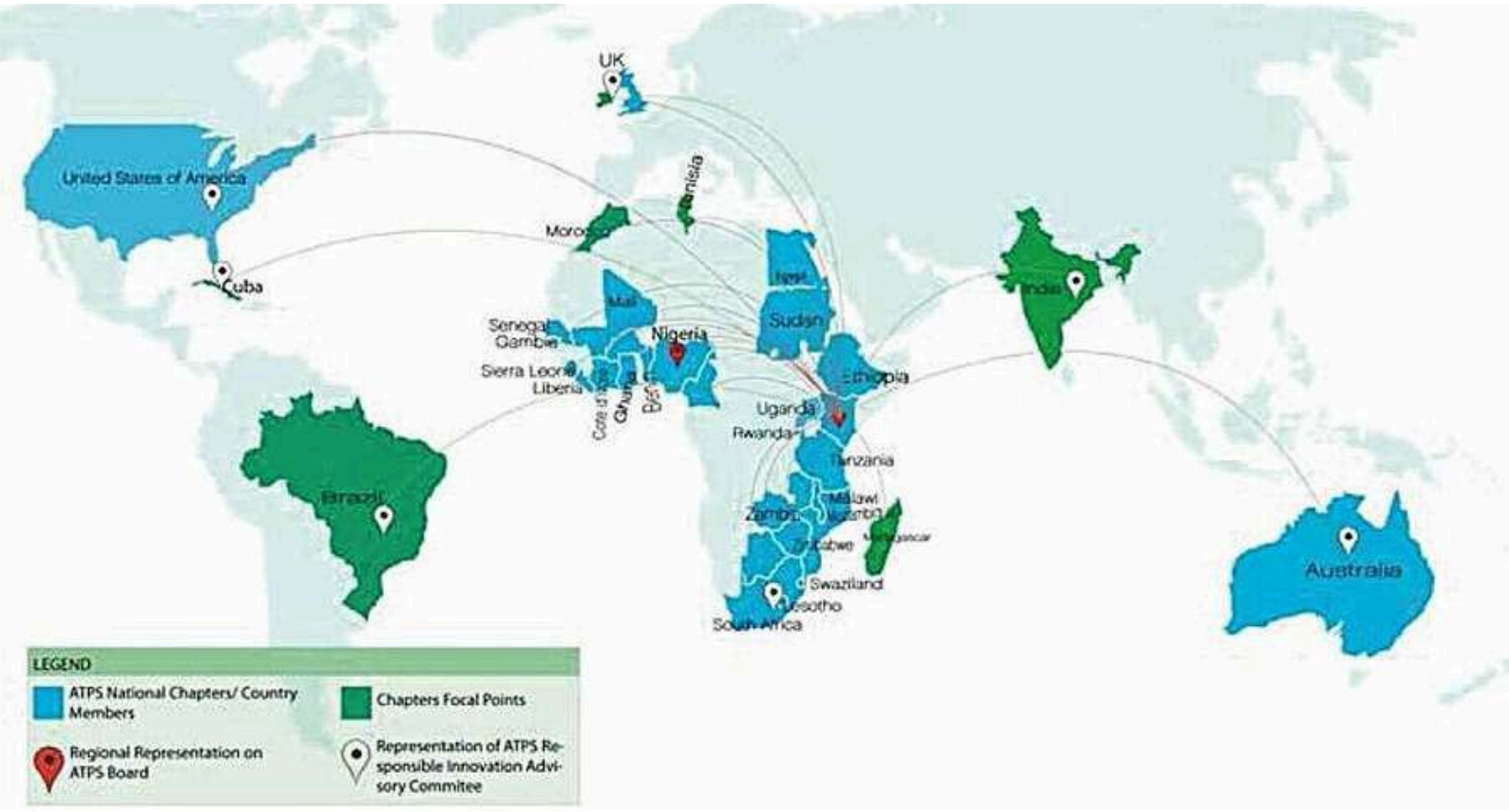

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