The African Child as a Technological Citizen

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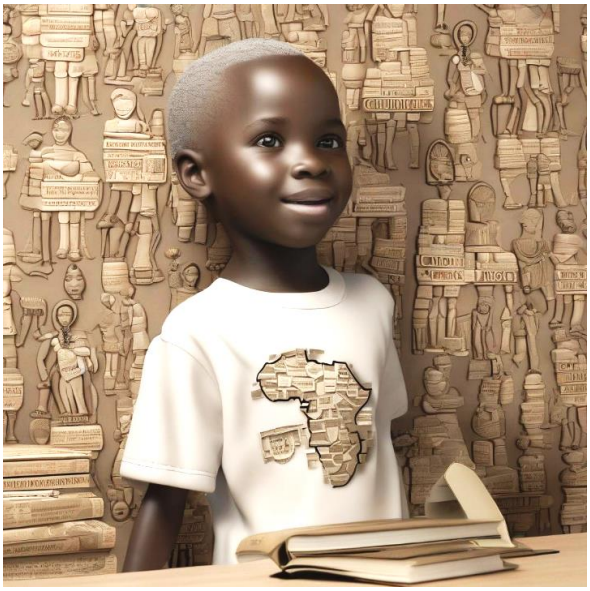

CHILD-AUTHOR DEVELOPMENT PROGRAMME
making world leaders out of African children

ABSTRACT

This paper examines the philosophical, political, and pedagogical foundations for conceptualizing the African child as a technological citizen. It proposes that the African child is not merely a beneficiary of technological advancement but a potential architect of Africa's technological future. Drawing from African Technological Nationalism, Science and Technology Studies (STS), and postcolonial pedagogy, the paper advances a theory of childhood that imbricates innovation, speculative imagination, and civic scientific agency. The CHILD-AUTHOR DEVELOPMENT PROGRAMME (CADP) is presented as a pioneering institutional response to this reconceptualization. The paper situates the African child's technological citizenship within broader debates in the philosophy of technology, global epistemic justice, and educational reform. It interrogates the colonial residue in African science and technology education, while proposing new institutional pathways for embedding speculative authorship and invention literacy into early childhood development. The work also critically engages with the political economy of African development, showing how child-centered technological citizenship can serve as a counter-hegemonic force against technological dependence. In doing so, it deepens the theoretical underpinnings of African Technological Nationalism while proposing practical mechanisms for its institutionalization through pedagogy, literary creation, and public policy.

Keywords: African Child, Technological Citizenship, Postcolonial Pedagogy, Science and Technology Studies (STS), Child-Author Development Programme (CADP), Speculative Imagination, Civic Scientific Agency, Invention Literacy, Postcolonial Science, Epistemic Justice, Technicity, Narrative as Technology, Pan-African Futures, Digital Ecosystems / Algorithmic Colonization, Indigenous Epistemologies, Pedagogy of Invention, Youth Technological Agency, Civic Technological Ethics.

INTRODUCTION

From Subject to Citizen

The African child has long been positioned within systems of education, development, and aid as a passive subject to be acted upon (Mazrui, 1997). This paper challenges that narrative by introducing the concept of the

African child as a technological citizen – a being capable of understanding, shaping, and even transforming technological landscapes. In a postcolonial context where science and technology are often imported, the question arises: can the African child be more than a user of foreign technologies? Can they become inventors, designers, and visionaries of African futures? In this paper, we advance a theory of childhood that imbricates innovation, speculative imagination, and civic scientific agency.[i]

Technological literacy refers to the capacity to engage critically and creatively with the technoscientific systems that govern their lives and the destiny of their communities (Brey, 2005). It also includes the civic right to imagine and narrate technological futures – what Jasanoff (2003) calls a "technology of humility," in which citizens participate ethically in shaping science. Hence, technological citizenship goes beyond digital literacy or vocational skill; it is an ethical, participatory stance toward technology.

This reimagination is central to the mission of the CHILD-AUTHOR DEVELOPMENT PROGRAMME (CADP), which offers African children the tools and intellectual identity to function as early agents of technological nationalism through science fiction authorship. The question then arises: why does the subject-to-citizen transformation matter? The framing of the African child as a subject has been the historical result of colonial epistemologies that rendered children in Africa as tabulae rasae – entities to be written upon by Western forms of knowledge. The shift towards citizenship in the technological domain represents a rhetorical inversion and a fundamental philosophical realignment. Citizenship implies agency, rights, and responsibilities. It suggests that children are already engaged actors in the socio-technical fabric, rather than deferred participants awaiting adulthood to claim a stake.

Moreover, technological citizenship disrupts the binary of child versus adult, positioning the African child as a valid contributor to civic scientific discourse. Within this framework, writing, storytelling, and speculative imagination become civic acts and not ancillary exercises. They constitute early rehearsals of policy thinking, innovation design, and technological problem-solving. In other words, the African child, through authorship and imagination, already engages in anticipatory regimes governance[ii] – the envisioning of futures and the ethical interrogation of possible technological trajectories. This is notion of early participation in thinking about how future technologies should be governed.

Finally, by affirming the African child's capacity to theorize, critique, and invent, this paper calls for dismantling adult-centric paradigms of science and technology in Africa – an act that is both counter-hegemonic and foundational to epistemic justice.

The CADP then is an intensely futuristic educational programme, an insurgent intellectual project. Thus, it insists that the future of African technology must begin in the narrative spaces authored by its youngest citizens.

Philosophical Foundations: Childhood, Citizenship, and Technicity

Technicity as Identity

Drawing from Bernard Stiegler (1998) and Gilbert Simondon (1958), we argue that technicity – the human condition of being technological – is not external to us but part of what makes us human. The child, in this frame, is born into a world already shaped by technical systems and possesses the innate capacity to extend their mind into technical inventions.

Yet to deepen this claim, we must recognize that technicity is not only an anthropological constant but also a political field. When African children encounter technology, they are adapting to neutral instruments and also entering terrains of power, dependence, and possibility. Recognizing technicity as identity[iii] therefore demands teaching practices that treat them as creators and thinkers and not mere consumers of imported technological artefacts. Such a shift demands nurturing African children as epistemic producers whose subjectivity is interwoven with invention, design, and imaginative speculation.

African Epistemologies of Childhood

In many indigenous African societies, children are not seen as blank slates but as reincarnations and carriers of ancestral wisdom (Nsamenang, 1992). This perspective subverts Western developmentalist paradigms (Piaget,

1950) and shows that African children are already knowledgeable, though in distinct cultural registers – an insight that strengthens epistemic justice by validating indigenous ways of knowing. The child-thinker, in African cosmogony, is thus a legitimate contributor to societal evolution.

This epistemological orientation has profound consequences for the notion of technological citizenship. If children are acknowledged as inheritors of wisdom, then their technological imagination must be understood as part of a continuum – an intergenerational transfer of creativity, not a spontaneous break. The African child's speculative thought may thus be situated within an ancestral epistemology that validates invention as an extension of cultural survival. By recognizing this continuity, technological citizenship becomes more than participation in modernity. It becomes a reclamation of African modes of knowledge production.

The Right to Invention

Building on postcolonial science discourse (Harding, 1998), we assert that invention is a democratic right and a civic duty. This notion is critical for correcting global imbalances in who gets to create and validate knowledge. In societies shaped by colonial technological dependence, asserting this right must begin with children. Technological citizenship therefore demands an early pedagogy of invention. Early exposure to creating scientific imagination as embedded in the CADP pedagogy and curriculum then affords the African child the intellectual and mind power to develop the invention habit when they come of age as adults, and as such the invention habit becomes a social and cultural pastime, and as is wont with human inclinations, the invention habit then becomes difficult to break. Technicity is thus produced, which itself becomes a powerful and unfailing source of the people's pride and an indelible identity marker.

It then becomes necessary to recognize invention not only as an act of producing artefacts but as a practice of self-definition. The African child who invents in speculative fiction is also inventing themselves as a technological citizen, asserting identity, dignity, and agency through creative design – a lived expression of technicity as identity. Their inventions become autobiographical extensions of their subjectivity, civic declarations of their presence in a world that otherwise renders them peripheral. Thus, the right to invention is simultaneously the right to identity, dignity, and sovereignty.

Postcolonial Science: Repositioning the African Child in the Global Technological Order

The global scientific regime often marginalizes Africa and renders African children invisible as contributors to scientific imagination (Wa Thiong'o, 1986; Leach & Fairhead, 2002). STEM education in Africa, often modeled on exogenous paradigms, does not prioritize local narratives, problems, or potentialities. In this context, African Science Fiction becomes a powerful tool of resistance and repositioning (Okorafor, 2019). It allows African children to reframe their identities from receivers of Western technological futures to originators of an African technological-identity future. The CADP leverages this power by training children to write speculative fiction that projects African inventors, scientists, and technocrats into alternate technopolitical timelines.

We must highlight how global hierarchies of knowledge production systematically erase African voices, producing what Fricker (2007) calls 'epistemic injustice,'[iv] – the exclusion of certain groups from credibility and participation in knowledge creation. Achieving epistemic justice therefore requires institutional frameworks that value children's speculative narratives as legitimate knowledge production within Africa's technoscientific future. International indices of innovation, patent production, and scientific publication consistently present Africa as lacking. Yet these measures are predicated on epistemic infrastructures that valorize Euro-American methods of knowledge validation.[v] When African children write science fiction, they are not simply indulging in creative play. They are performing epistemic disobedience (Mignolo 2009). They are rejecting the very parameters that mark them as deficient and instead offering alternative ways of knowing, imagining, and designing futures – a deliberate challenge to the hierarchies that define whose knowledge counts. Through speculative authorship, they produce new frameworks for thinking technology in African terms.

Furthermore, the African child's repositioning in global technoscience is inseparable from questions of linguistic justice. Wa Thiong'o (1986) has shown that colonial languages function as epistemic filters, shaping

what is thinkable by the colonized. That is, colonial languages function as linguistic and epistemic barriers that filter what Africans can imagine and express. Through authoring speculative narratives in indigenous languages or Africanized English, African children can reclaim linguistic sovereignty, recover epistemic justice, and expand the cognitive horizon of African futures, therein expanding Africa's technological imagination. Thus, postcolonial science is not only about the content of technological imagination but also about the language through which that imagination is articulated.

Finally, situating African children within the global order requires us to confront the politics of futurity. Global debates on artificial intelligence, biotechnology, and climate engineering seldom include African perspectives. CADP-trained children enter these debates through anticipatory governance. Their stories speculate on technologies before they exist and thereby insert Africa's voice into the world's technological future. This act of speculative authorship[vi] becomes a counter-hegemonic[vii] intervention – a declaration that Africa will no longer be a passive recipient of global technoscientific futures but a co-designer of planetary destinies.

The Pedagogy of the Technological Child: The CADP Model

The CHILD-AUTHOR DEVELOPMENT PROGRAMME (CADP) is an educational and civic experiment that develops child-authors of African Science Fiction. Their writing is not mere entertainment; it is a form of speculative authorship, a pedagogy wherein children claim intellectual space in Africa's technological story and practice citizenship through imagination. The core strategies include:

- **Recasting African Inventors as Scientistic Personae:** Children learn to research African scientists, inventors, and engineers and reimagine them as science-fictional heroes.
- **Creating Intellectual Identities:** Titles such as Child-Professor of STS provide identity platforms that confer scholarly authority to children (Nwosu, 2025).
- **Rewarding Storytelling as Technological Authorship:** With structured cash awards and publishing incentives, CADP, through public donations and sponsorships, rewards the ability to narrate technology stories of Africa as a civic contribution.

CADP's pedagogy does not only aim at STEM proficiency. It cultivates speculative agency – the capacity to imagine and evaluate technological possibilities before they exist. In doing so, it creates the intrinsic motivation for children to pursue STEM proficiency as a tool for realizing their imaginative visions. The child is trained to imagine technological solutions, national futures, and ethical dilemmas, thus operating as a miniature science policy actor (Jasanoff, 2003).

It is necessary to understand CADP as both curriculum and counter-curriculum. As curriculum, it teaches research and creative technological thinking. It systematically equips children with tools for researching, conceptualizing, and narrating science and technology. As counter-curriculum, it is counter-hegemonic. It challenges Western STEM pedagogies that prioritize rote memorization over creative speculation. The duality of CADP's pedagogical method lies in its ability to validate storytelling as a scientific act – a radical inversion in a world where science and literature are often separated.

Moreover, CADP's pedagogy represents an experiment in identity construction. The designation of "Child-Professor of STS" is not a mere honorary title; it is a performative act that inscribes children into scholarly networks typically reserved for adults, advancing epistemic justice by legitimizing their voices as knowledge producers. In granting such titles, CADP destabilizes adultist hierarchies of knowledge and authorizes children as legitimate producers of theory. This recognition is essential if technological citizenship is to move from abstraction to lived practice.

Finally, the incentive structure of CADP (cash awards, publishing opportunities, and public recognition of donors) function as motivational tools and a symbolic economy that values imagination as civic labour. It democratizes innovation by turning technological imagination into a shared social responsibility – a step toward restoring Africa's technological sovereignty through collective participation. The incentive structure of CADP signals to children, parents, and communities that technological imagination is a civic duty and not an indulgence. In this sense, CADP is crafting a new political economy of childhood in Africa – one that values

and validates the child's creativity in technological imagination as an important resource for national development.

CADP Pilot Initiatives: Demonstrating the Pedagogy in Practice

The operational principles of the CHILD-AUTHOR DEVELOPMENT PROGRAMME (CADP) have been progressively validated through small-scale pilot initiatives designed to test its pedagogical and civic propositions. These pilot activities demonstrate how speculative authorship can cultivate invention literacy, civic ethics, and technological imagination among African children. These include:

The Darling FM Radio Partnership

Through the sponsorship of Senator Dr. Eze Ajoku, OFR, Darling 107.3 FM in Owerri hosts a weekly broadcast titled "CHILD-AUTHOR DEVELOPMENT PROGRAMME – A Social Movement on African Technological Nationalism." This platform provides children with opportunities to narrate their science-fiction stories to a public audience, transforming literary creativity into civic participation. The radio sessions also function as early civic laboratories where children articulate ethical, environmental, and national questions surrounding technology.

The NoiseMaster Story Prototype

Among the most illustrative case studies is the NoiseMaster story – a speculative narrative that imagines a device capable of silencing sound while amplifying thought. The story-frame produced for child participants to weave into full stories, engages issues of surveillance, privacy, and freedom of expression. It demonstrates how CADP's narrative pedagogy enables children to participate in anticipatory governance by imagining ethical boundaries for future technologies.

The Child-Professor of Science and Technology Studies (STS)

This designation institutionalizes scholarly identity for outstanding child-authors. Supervised by an Academic Moderator from a university, the Child-Professor of STS certification links creative authorship with academic inquiry, four levels deeper than the Child-Author Proficiency Certificate. Each award is endowed with ₦100,000, publicly funded through donor sponsorships. The model redefines early academic recognition as a civic instrument for technological citizenship.

The Public Sponsorship Model

CADP's civic economy is sustained through public participation. Each accepted story attracts a ₦20,000/₦30,000 reward slot funded by individual or corporate donors, fostering a sense of collective ownership of Africa's intellectual future. This decentralized funding system transforms creative writing into a shared national enterprise where citizens directly invest in the technological imagination of children.

Collectively, these initiatives operationalize CADP's theory of change, which is transforming narrative imagination into structured civic and economic practice. They illustrate that the African child is not a passive learner but an active inventor, theorist, and citizen in the making.

These pilot initiatives confirm the theoretical architecture proposed in this paper, namely technological citizenship can be cultivated through narrative, mentorship, and civic recognition. The transition from imagination to invention literacy within CADP illustrates how philosophy translates into pedagogy and policy. By situating children as legitimate producers of speculative knowledge, the programme enacts a postcolonial reclamation of technicity as both identity and practice. The Child-Professor of STS initiative, the NoiseMaster prototype, and the public sponsorship model collectively demonstrate that African Technological Nationalism need not await adulthood or elite institutions; it can be incubated in children's authorship spaces. In doing so, CADP bridges theory and application, transforming technological nationalism from an abstract ideal into a participatory, child-driven civic movement.

The lived outcomes of these pilot initiatives reveal that technological imagination, when institutionally nurtured, matures into civic nationalism. It is within this transformative movement, from authored story to social ideology, that the child becomes both the conscience and catalyst of African Technological Nationalism.

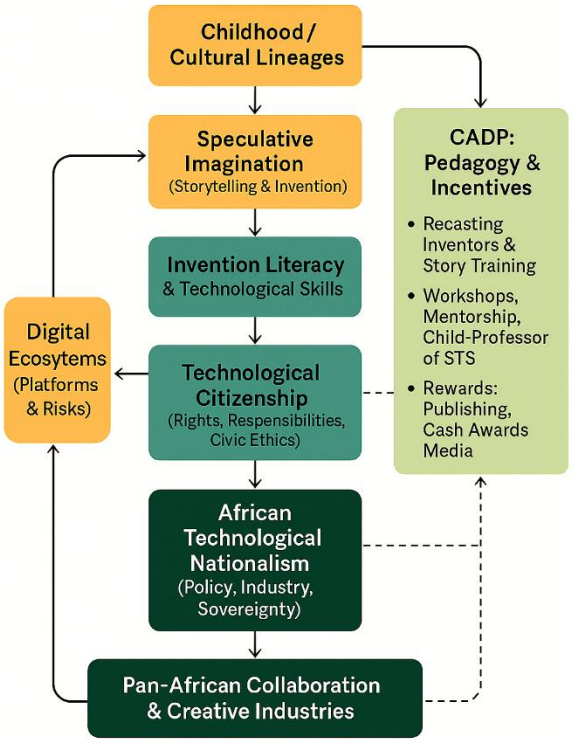

Figure 1: Conceptual model of "The African Child as a Technological Citizen" illustrating how childhood and indigenous epistemologies enable speculative imagination, which CADP mediates into invention literacy and technological agency, producing technological citizenship that drives African Technological Nationalism and pan-African creative economies.

This is a flow diagram showing Childhood leading to Speculative Imagination, then to Invention Literacy, Technological Agency, and Technological Citizenship, which support African Technological Nationalism and Pan-African industries. CADP and Digital Ecosystems act as contextual influences.

This conceptual model visualizes the developmental continuum by which the CHILD-AUTHOR DEVELOPMENT PROGRAMME (CADP) mediates the transformation of African childhood into technological citizenship. Beginning from the cultural and ancestral lineages of African childhood, speculative imagination emerges as the generative source of invention literacy and technological skills. Through structured pedagogy (viz. authorship, mentorship, and recognition) CADP converts imagination into civic technological agency. This agency matures into technological citizenship, defined by rights, responsibilities, and ethical engagement with science and technology. From this foundation arises African Technological Nationalism, representing both the civic consciousness and the institutional goal of reclaiming technological sovereignty. The model also situates CADP within digital ecosystems and Pan-African creative economies, indicating feedback loops between imagination, production, and policy. Together, these relationships affirm that Africa's technological future is authored, imagined, and enacted by its youngest citizens.

African Technological Nationalism and the Child

African Technological Nationalism denotes a cultural and political commitment to build and localize technological capacity as an expression of national sovereignty (Akinwale 2010). If the nation is a techno-political project, then the child must be its earliest contributor, embodying technological citizenship in practice rather than waiting for adulthood. The lived experiments of CADP already suggest that the dreams of technological independence are first rehearsed in story form before they materialize in policy or production. The African child-author thus becomes a symbolic frontier where the dreams of technological independence are rehearsed and refined. The stories these children write are not mere fiction – they are imaginative blueprints for national development, cultural pride, and scientific autonomy. In this view, child-authorship is not extracurricular; it is proto-citizenship. It prepares the child to participate in creating future technological economies and to lead and reimagine them.

African Technological Nationalism cannot remain the exclusive preserve of policymakers and engineers alone; it must be democratized through socialization and social construction. African Technological Nationalism must move beyond elites and become a democratic culture nurtured through education and community life. When African children participate in this technological nationalism, it evolves into a counter-hegemonic movement that resists dependence on imported science and embeds technological innovation in everyday civic identity.

Through training children to participate in this nationalism, CADP ensures that the future technological sovereignty of Africa is not contingent on a narrow elite (that may be oligarchic or subservient to comprador forces of technological imperialism) but is cultivated as a mass civic identity, a social movement of the masses. In this sense, technological nationalism becomes a cultural project, inseparable from literature, language, and everyday life.

The child as a technological nationalist is both a dreamer and a strategist. Through fiction, they test the boundaries of what is possible, rehearsing scenarios of energy independence, biomedical innovation, and digital sovereignty. These stories become laboratories of thought where national policy options are simulated long before they reach parliaments. Thus, the African child is not only educated into technological nationalism – they are authoring it, scripting its trajectories in imaginative registers that prefigure material reality.

African Technological Nationalism, when viewed through the lens of child authorship, takes on an ethical dimension grounded in epistemic justice, ensuring that African children's imaginations and inventions are recognized as credible contributions to scientific knowledge and public ethics. It resists the reduction of technology to instrumental utility and insists that African technological futures must embody values of justice, sustainability, and communal well-being. Children, with their acute sensitivity to fairness and collective flourishing, are uniquely positioned to articulate such ethical orientations.

Historical Lineages of African Childhood and Technology

The positioning of the African child as a technological citizen cannot be understood without reference to historical lineages of childhood and technology on the continent. In pre-colonial African societies, children were active participants in technological life. Apprenticeships, initiation schools, and household crafts trained them early in metallurgy, herbal science, and agricultural innovation (David 1998). These systems embedded invention within ethics and communal responsibility – a model of technological citizenship long before the term existed. The apprenticeship model was not only vocational training but also a pedagogical system that linked technological knowledge to ethical responsibility and communal well-being.

Colonial education disrupted this continuum. By privileging literacy in European languages and sidelining indigenous epistemologies, colonial schooling constructed the African child as a blank slate upon which Western knowledge was to be written (Fanon, 1967). By privileging European languages and dismissing indigenous epistemologies, colonial education produced an epistemic infrastructure (Harding 1998) that placed high value on Western knowledge while silencing African systems. The African child was thus re-imagined as an empty vessel awaiting the inscription of Western canon. African children were redirected from apprenticeship in indigenous technics to clerical roles in colonial administration. This reconfiguration severed the child's direct relationship with indigenous technologies and reoriented them toward consumption of imported artefacts.

Post-colonial policies have rarely repaired this rupture. Modernization agendas focused on industrial growth but neglected to restore children's connection to Africa's indigenous technicity – the idea that creativity and tool-making are integral to human identity. Reclaiming these lineages is essential for epistemic justice and for grounding technological citizenship in African heritage.

To frame the African child as a technological citizen today is therefore to recover what was dislocated by colonial epistemologies. It is to assert that the child's place in technology is not novel but ancestral and that innovation has always been part of African childhood, though suppressed by structures of domination. Re-establishing this continuity transforms CADP's work into a pedagogical and counter-hegemonic act, a de-colonial resistance.

Comparative Global Models of Child Technological Citizenship

To further situate the African child within the discourse of technological citizenship, it is instructive to examine comparative global models. In Finland, education policy has long emphasized inquiry-based learning, coding in early childhood curricula, and civic participation in technological debates (Sahlberg, 2011). South Korea, after the devastation of war, invested heavily in child-centered STEM education, producing a culture where technological literacy is tied to national identity (Kim, 2005). India's IT revolution also mobilized the energy of its youthful population through policy incentives for coding, mathematics, and digital entrepreneurship (Nayar, 2010).

These models demonstrate that the child can serve as a cornerstone of national technological transformation. Yet the African case demands caution. To mimic these models without adaptation would replicate the dependency that African Technological Nationalism seeks to resist. African pathways must be culturally grounded, drawing from indigenous epistemologies and speculative traditions while selectively learning from global practices. The CADP embodies this hybrid approach: while recognizing the value of early authorship as practiced in some global contexts, it uniquely frames speculative writing as a form of technological agency rooted in African identity.

In this sense, comparative models are not templates but mirrors, reflecting both the possibilities and the dangers of child-centered technological pedagogy. The challenge is to craft an African model of technological citizenship that resists the homogenization of global educational paradigms while asserting Africa's epistemic sovereignty.

The African Child in Digital Ecosystems

Today's African child lives within digital ecosystems that both empower and constrain. Online spaces – social media, coding clubs, and gaming platforms – offer arenas for practicing technological agency and creativity. Many young Africans have already leveraged platforms such as YouTube, TikTok, and open-source coding forums to showcase innovations and imaginative narratives (Nyabola, 2018). These ecosystems thus serve as informal pedagogical sites, extending beyond the classroom into spaces of peer-to-peer learning and global visibility.

Yet digital ecosystems are not neutral. The infrastructures of Big Tech are deeply enmeshed in algorithmic colonization[viii] – the reproduction of power asymmetries through data extraction, surveillance capitalism, and AI bias are stark examples (Couldry & Mejias, 2019). African children engaging in these spaces often do so within architectures designed to commodify their creativity rather than nurture their technological citizenship. The digital public sphere thus risks transforming African children into users whose intellectual labour fuels global capital rather than domestic technological sovereignty.

The CADP represents a counter-digital pedagogy. By embedding speculative authorship into child development, it trains children to understand digital technologies and to think, narrate, and theorize them. A child who writes about algorithmic injustice or who imagines alternative African AI systems is already practicing technological resistance. In this way, CADP ensures that the African child enters digital ecosystems as a critical citizen and not as a colonized subject.

Narrative as Technology

Narrative itself must be recognized as a form of technology. In African societies, oral traditions have historically functioned as epistemic machines – transmitting memory, organizing social norms, and rehearsing cosmological futures (Vansina, 1985). Storytelling is thus not ancillary to technological imagination but constitutive of it. Through narrations, communities produced and reproduced knowledge systems that guided material inventions, from iron smelting to architecture.

Afrofuturism and Africanfuturism inherit this logic, treating narrative as a technology of speculative world-making. The CADP, by institutionalizing child-authored narratives, transforms storytelling into an explicit instrument of technological nationalism. Children's stories become laboratories of thought, prototyping devices, social systems, and ethical frameworks. The act of writing speculative fiction thus parallels the act of

engineering: both involve constructing systems, testing possibilities, and embedding values in form.

Narrative as technology also challenges the dichotomy between science and literature. It suggests that imagination is itself a technical act, a form of design thinking that precedes invention, linking creativity directly to technological citizenship. The African child, by crafting science fiction, is therefore simultaneously producing art and also performing civic technics, embedding themselves within the continuum of African technological identity.

Civic Technological Ethics Through the Eyes of the Child

The ethical dimension of technology has too often been monopolized by adult experts in philosophy, law, or policy. Yet children possess a distinctive ethical imagination characterized by acute sensitivity to fairness, justice, and community (Hart, 1992). When African children narrate speculative futures, they are simultaneously interrogating the ethical boundaries of those futures. Recognizing this perspective advances epistemic justice by admitting children's moral reasoning into the governance of science.

The CADP's training already demonstrates this. For example, the development of the NoiseMaster story – a device that silences sound and amplifies thoughts – engages fundamental ethical questions about privacy, surveillance, and freedom of expression. Children who imagine such devices are effectively participating in anticipatory governance, exercising civic ethics for futures still in design.

This ethical imagination is critical in domains such as artificial intelligence, biotechnology, and climate engineering, where Africa's voice is often marginalized. In embedding children's ethical reflections into public discourse, CADP ensures that technological futures are grounded in values of justice, sustainability, and communal well-being. The African child as a technological citizen thus emerges as an inventor and also as a moral philosopher of technoscience.

The Economics of Child Technological Citizenship

Recognizing the African child as a technological citizen also requires re-evaluating economic value. A child's speculative story is not play but intellectual property – creative capital with measurable, long-term potential for Africa's innovation economy. In an era where storytelling fuels industries such as film, gaming, and virtual reality, African children's narratives represent an untapped reservoir of creative capital (Deuze, 2007).

CADP already models this civic economy through cash awards, publication pathways, and public sponsorships. Each incentive signals that technoscientific imagination itself is productive labour contributing to the continent's knowledge economy. Yet the larger challenge is to construct an ecosystem where child-authored stories seed new industries. A speculative narrative may inspire a film adaptation, a video game, or a design prototype. Each story becomes a low-cost research prototype, illustrating how narrative as technology can generate real economic outcomes. By treating children's authorship as the foundation of creative economies, African states can transform what is often dismissed as play into engines of technoscientific development, an entry point for technological entrepreneurship and civic innovation – an act of counter-hegemony against predatory global markets.

This approach also resonates with the African Union's call for knowledge economies under Agenda 2063 (AU, 2015). Child-authorship, properly institutionalized, aligns with this vision by ensuring that intellectual capital emerges early and is distributed widely. The African child, therefore, becomes a technological citizen, an economic agent whose creativity fuels continental technological growth.

Pan-African Futures: Child Citizenship Beyond Borders

The framing of the African child as a technological citizen must transcend national boundaries. Pan-Africanism, historically concerned with political liberation and cultural unity, must now embrace technological independence as a continental project. The CADP provides a model for such integration by envisioning cross-border collaborations among child-authors. Picture Nigerian, Kenyan, and South African children co-writing speculative prototypes – stories that imagine continental energy networks, shared digital currencies, or cooperative African AI systems. Such narratives would not only promote cross-cultural solidarity but also

prefigure material infrastructures of Pan-African integration – an imaginative rehearsal of political economy where design, ethics, and solidarity merge. The diaspora, too, would play a crucial role. African children in Europe, the Americas, and Asia would serve as epistemic bridges, linking global experiences to African futures while resisting assimilationist erasure.

This vision supports the African Union's Agenda 2063, which envisions "an integrated, prosperous, and peaceful Africa" (AU, 2015). Embedding child-authors in Agenda 2063 transforms it from a top-down policy framework into a civic movement authored from below. In this way, Pan-African futures are not abstract projections but lived practices of child technological citizenship.

Towards a New Social Contract with the African Child

The recognition of the African child as a technological citizen culminates in the call for a new social contract. Historically, the child has been treated as a ward of the state, a future adult-in-waiting. This paradigm must shift toward recognizing the child as a co-author of national destiny in the present.

Such a contract demands philosophical realignment, political recognition, and institutional reform. Philosophically, it requires acknowledging that children possess epistemic rights: the right to narrate, to invent, and to critique technological systems. Politically, it requires integrating child-authored texts into policy deliberations, treating them as legitimate contributions to national debates. Institutionally, it requires embedding CADP within universities, parliaments, and innovation hubs, thereby ensuring that children's voices are not relegated to extracurricular margins but positioned at the center of civic life.

In short, the new social contract must affirm that to build Africa is to build its children as active technological citizens whose imaginations and inventions constitute the foundation of sovereignty itself.

Recommendations and Policy Implications: Institutionalizing Technological Citizenship

To recognize the African child as a technological citizen is to rethink the architecture of education policy. The following recommendations are acute:

- **Integrate CADP into Public School Curricula:** Treat science fiction writing as part of national science education (UNESCO, 2017).
- **Fund Technological Imagination:** Establish national awards for child-authors of African technoscientific stories.
- **Establish Intellectual Titles:** Institutionalize designations like Child-Professor of STS to validate and elevate child scholarship.
- **Build Child-Tech Forums:** Create annual platforms where children can present speculative solutions to national challenges before policymakers.

It is essential to recognize that institutionalizing technological citizenship requires curricular adjustments and structural reforms in governance. Ministries of Education must collaborate with Ministries of Science and Technology to jointly steward child authorship initiatives. Likewise, funding mechanisms must move beyond donor-dependence to include national budgetary allocations, thereby signaling that child-centered technological imagination is a state priority and not only an NGO experiment.

Additionally, there is a need for transnational collaboration. The African Union could institutionalize a continental prize for child-authors of science fiction, thereby embedding technological citizenship within the broader framework of Pan-African integration. Such initiatives would not only validate African children's speculative agency but also harmonize national efforts into a continental movement.

Finally, policy frameworks must address inclusivity. Technological citizenship must be extended to children in rural areas, marginalized communities, and those with limited access to digital infrastructure. To achieve this, CADP-inspired initiatives must adopt hybrid pedagogies that blend low-tech storytelling (oral traditions, handwritten manuscripts) with high-tech platforms (digital publications, virtual reality narratives). Only then can the African child's technological citizenship be genuinely democratic and representative.

CONCLUSION: A DECLARATION FOR THE FUTURE

Africa's future will not be decided solely in laboratories, boardrooms, or parliaments. It will also be imagined in the minds of its youngest citizens. The African child is already a bearer of cognitive, creative, and civic capacities to engage in technological nation-building. To train them is to build the continent. To neglect them is to inherit a future shaped elsewhere.

"It is always better to train children than to repair adults." – Prof Charles Chukwuma Soludo, Governor of Anambra State (2024).

The above statement by Soludo requires framing it as a declaration of urgency. Fixing African children for technological mentation and citizenship means positioning the African Continent for technological sovereignty. The recognition of African children then as technological citizens is not optional – it is rather imperative. Without this recognition, Africa risks perpetuating cycles of dependence, importing technologies and also the imaginaries that underwrite them. By contrast, investing in child technological authorship and technological citizenship offers a pathway towards intellectual sovereignty, cultural resilience, and economic independence.

This declaration therefore calls upon policymakers, educators, parents, and communities to embrace the African child as a co-author of the continent's destiny. It calls upon universities to reconfigure their epistemic hierarchies, making room for child-authored texts within scholarly canons. It calls upon industries to treat child-authored speculative narratives as resources for innovation design. Above all, it calls upon Africa itself to look at its children not as problems to be solved but as visionaries to be listened to.

The African child is not waiting to become a citizen – they already are. What remains is for society to recognize, institutionalize, and celebrate their technological citizenship.

REFERENCES

1. African Union (AU). (2015). Agenda 2063: The Africa We Want. Addis Ababa: African Union Commission.
2. Akinwale, A. A. (2010). Technological development in Nigeria: The Nigerian machine tools industry experience. Journal of Sustainable Development in Africa, 12(5), 129-139.
3. Brey, P. (2005). The epistemology and ontology of human-technology relations. In H. Harbers (Ed.), Inside the politics of technology (pp. 69–84). Amsterdam: Amsterdam University Press.
4. Couldry, N., & Mejias, U. (2019). The Costs of Connection: How Data Is Colonizing Human Life and Appropriating It for Capitalism. Stanford University Press.
5. David, N. (1998). The Archaeology of African Metallurgy. Journal of Archaeological Research, 6(2), 147–198.
6. Deuze, M. (2007). Media Work. Cambridge: Polity Press.
7. Fanon, F. (1967). Black Skin, White Masks. New York: Grove Press.
8. Fricker, M. (2007). Epistemic Injustice: Power and the Ethics of Knowing. Oxford University Press.
9. Guston, D. (2014). Understanding Anticipatory Governance. Social Studies of Science, 44(2), 218–242.
10. Harding, S. (1998). Is Science Multicultural? Postcolonialisms, Feminisms, and Epistemologies. Indiana University Press.
11. Hart, R. (1992). Children's Participation: From Tokenism to Citizenship. UNICEF.
12. Jasanoff, S. (2003). Technologies of humility: Citizen participation in governing science. Minerva, 41(3), 223–244.
13. Kim, D. (2005). The development of Korean higher education in the 20th century. International Journal of Educational Development, 25(5), 597–614.
14. Leach, M., & Fairhead, J. (2002). Science, policy and uncertainty: The case of the MRC/UVRI trial on HIV and breastfeeding in Uganda. Africa, 72(1), 83–103.
15. Mazrui, A. (1997). The African renaissance: A triple legacy of skills, values and gender. Development Policy Management Forum.

16. Mignolo, W. D. (2009). Epistemic Disobedience, Independent Thought and Decolonial Freedom. Theory, Culture & Society, 26(7-8), 159–181. SAGE Publications. https://doi.org/10.1177/0263276409349275
17. Nayar, P. K. (2010). An Introduction to New Media and Cybercultures. Wiley-Blackwell.
18. Nsamenang, A. B. (1992). Human Development in Cultural Context: A Third World Perspective. Sage Publications.
19. Nwosu, T. I. (2025). Making World Leaders Out of African Children: The CADP Vision. Internal Working Paper.
20. Nyabola, N. (2018). Digital Democracy, Analogue Politics: How the Internet Era is Transforming Politics in Kenya. Zed Books.
21. Okorafor, N. (2019). Africanfuturism Defined. [Blog post].
22. Piaget, J. (1950). The Psychology of Intelligence. Routledge.
23. Sahlberg, P. (2011). Finnish Lessons: What Can the World Learn from Educational Change in Finland? Teachers College Press.
24. Simondon, G. (1958). Du Mode d'Existence des Objets Techniques. Aubier.
25. Stiegler, B. (1998). Technics and Time, 1: The Fault of Epimetheus. Stanford University Press.
26. Vansina, J. (1985). Oral Tradition as History. University of Wisconsin Press.

PROJECT PARTNERS

ENDNOTES

i. **A theory of childhood that imbricates innovation, speculative imagination, and civic scientific agency**. This implies an understanding or perception of child upbringing that brings together innovation, imagination, and civic participation in science. The triad of *innovation, speculative*

imagination, and civic scientific agency expresses how invention and creative thinking are inseparable from civic life. Sheila Jasanoff (2003) introduced the idea of *technologies of humility*. According to this notion, science and technology should integrate ethical reflection, imagination, and public participation. Within CADP, this means that children's imaginative storytelling is not isolated from civic responsibility; it is a structured rehearsal for national innovation. Each child's story becomes a micro–policy experiment where technological ideas and civic ethics merge. This amplifies African Technological Nationalism's goal of embedding innovation within social conscience and communal responsibility.

ii. **Anticipatory regimes governance** implies early participation in thinking about how future technologies should be governed. The term *anticipatory governance* (Guston, 2014) describes the practice of engaging citizens early in the social and ethical deliberation of emerging technologies. It shifts governance from reaction to anticipation. In CADP, children's speculative stories are treated as anticipatory interventions—fictional rehearsals of technologies that do not yet exist but may shape Africa's future. Thus, children act as early policymakers, raising ethical and social questions before technologies are built. The term *anticipatory regimes governance* in the original text can be simplified to express this participatory foresight function.

iii. **Technicity as identity** – This is the idea that being human already includes being technological. Philosophers of technology such as Gilbert Simondon (1958) and Bernard Stiegler (1998) argue that technicity (the quality of being technological) is not external to humans but part of human identity. Simondon sees humans and machines as co-evolving beings: technology extends human capacities while humans give meaning to technology. Stiegler expands this by describing *technics* as humanity's memory and future—the prosthetic extensions through which thought and culture are transmitted. For CADP, this means that the African child is *born technological*, not merely trained to use technology. Authorship and invention are therefore natural expressions of selfhood, not foreign impositions.

iv. **Epistemic justice** – The equitable recognition of diverse ways of knowing, especially non-Western or marginalized knowledge systems, in the production and validation of knowledge (Fricker 2007). Within CADP, it means giving African children's imaginative and cultural knowledge equal status with Western scientific narratives.

v. **Epistemic infrastructures that valorize Euro-American methods of knowledge validation**. This implies knowledge systems that favour Western ways of deciding what counts as science. Sandra Harding (1998) and other postcolonial theorists have shown that global science operates within *epistemic infrastructures*—the institutional, linguistic, and cultural frameworks that determine what qualifies as valid knowledge. These infrastructures have historically privileged Euro-American epistemologies, marginalizing African ways of knowing. Within the CADP framework, correcting this imbalance is part of *epistemic justice*: training African children to produce, narrate, and validate their own scientific and imaginative knowledge on equal footing with Western standards. This transforms African childhood into a site of epistemic production rather than consumption.

vi. **Speculative authorship –** A creative practice in which storytelling becomes a method of exploring possible futures and testing technological ideas before they exist. It links literary imagination with civic design and invention.

vii. **Counter-hegemonic –** Actions or ideas that resist dominant global or colonial ideas of knowledge, technology, or culture. CADP's approach is counter-hegemonic because it challenges dependence on imported scientific paradigms.

viii. **Algorithmic colonization** means digital systems that reproduce global inequalities through biased data and control of information. *Algorithmic colonization* refers to how digital infrastructures (search engines, social media algorithms, and AI systems) reproduce colonial power by extracting data from users in the Global South and reinforcing Western epistemic dominance. Nick Couldry and Ulises Mejias (2019) describe this as *data colonialism*: the appropriation of human life through data extraction and algorithmic control. In the CADP framework, teaching African children to understand, critique, and imagine alternatives to these systems transforms them from data subjects into *digital citizens*. Their speculative stories become counter-algorithms. They become narrative interventions against digital exploitation.