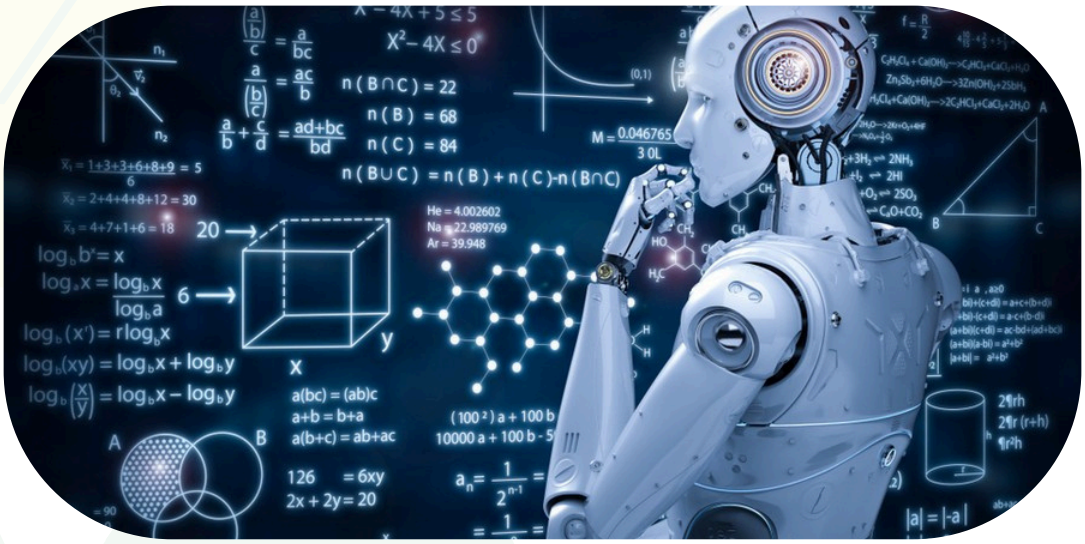
REPUBLIC OF KENYA

National Commission for Science, Technology and Innovation

POLICY BRIEF

Use of Artificial Intelligence in Research, Science and Technology



NACOSTI Policy Brief No. 4/ 2025-2026

JUNE 2026

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1. INTRODUCTION

Artificial intelligence (AI) has evolved from a specialist computational tool to a general-purpose technology transforming every stage of the research lifecycle. In 2024, AI-powered protein structure prediction received the Nobel Prize in Chemistry, and AI performance on demanding benchmarks improved by up to 67 percentage points in a single year (Stanford AI Index, 2025). Across disciplines from genomics and drug discovery to climate science and agricultural genetics, AI is accelerating timelines, expanding analytical capacity, and generating insights at previously unimaginable scales.

Globally, AI research output has grown exponentially, with China leading in publications and patents and the United States leading in notable model production (Stanford AI Index, 2025). The EU AI Act (2024) has established the most comprehensive risk-based regulatory framework for AI globally, with specific provisions for research. The UNESCO Recommendation on the Ethics of AI (2021), endorsed by Kenya, provides a normative global framework covering transparency, accountability, and human oversight in AI applications.

At the continental level, sub-Saharan Africa faces significant AI implementation challenges, ranking lowest globally in AI publications and accounting for less than one percent of global data centre capacity. Despite this, African AI initiatives are expanding. The African Declaration on AI, adopted in Kigali in April 2025, established the Africa AI Fund, Council, and Scientific Panel. The Nairobi AI Forum (February 2026) mobilised concrete partnership commitments, including 1.5 million graphics processing unit (GPU) hours for African innovators and a EUR 50 million venture platform (UNDP Kenya, 2026).

Kenya's Science, Technology and Innovation (STI) sector is well-positioned within this landscape. The country launched its National AI Strategy 2025–2030 in March 2025 and ranks 65th globally and first in sub-Saharan Africa on the Government AI Readiness Index 2025 (Oxford Insights, 2025). Kenya is also a founding member of the International Network of AI Safety Institutes (the only African nation in the network), underscoring its credentials as a continental leader in AI governance.

Across Kenya's STI sector (universities and colleges, national research institutes, private research entities and county-level hubs), research authorization frameworks do not yet require disclosure of AI use, scientific and ethics review committees lack AI-specific protocols, and there are no agreed standards for bias, reproducibility or accountability in AI-assisted outputs.

The brief addresses research authorization, quality assurance of AI-assisted outputs, and institutional preparedness for AI-enabled research across the STI sector, including private-sector research entities. It adopts a risk-proportionate, human-centred and sovereignty-anchored approach consistent with the UNESCO Recommendation on the Ethics of AI (2021) and the AU Continental AI Strategy.

2. RATIONALE

Kenya's readiness to leverage AI is well established. The country's 92.9 per cent smartphone penetration (Communications Authority of Kenya, 2025), vibrant startup ecosystem, and mature institutional STI infrastructure provide a strong foundation. However, Kenya's gross domestic expenditure on research and development (GERD) stands at approximately 0.81 per cent of GDP based on the most recent available data (UNECA, 2018), below the AU's aspirational target of one per cent and far below the OECD average of 2.7 per cent. While the National AI Strategy addresses R&D as one of seven themes, it does not prescribe the research-specific governance mechanisms that the STI sector requires. The gap is not merely institutional; it is a sector-wide governance deficit.

Kenya's founding membership in the International Network of AI Safety Institutes further underscores the country's readiness to lead on responsible AI governance in research. Generative AI tools can produce text indistinguishable from human-authored prose, generate plausible but fictitious datasets, and embed undisclosed biases in analytical outputs. A 2025 study established that while faculty and students across sub-Saharan African universities expressed strong concern about AI risks to academic integrity and data privacy, fewer than one-third reported having clear institutional AI policies (Sangwa et al., 2025). The gap between ethical awareness and governance preparedness is widening, directly reinforcing the case for the STI sector to act decisively.

This policy brief is informed by Vision 2030, the Bottom-Up Economic Transformation Agenda (BETA), the National AI Strategy 2025–2030, AU Agenda 2063, the AU Continental AI Strategy, and the UNESCO Recommendation on the Ethics of AI (2021). It provides the sector-specific governance layer for AI in research that none of these instruments individually delivers. International experience demonstrates that early sector-specific AI-in-research standards, such as bias auditing, reproducibility requirements and disclosure of AI methods, materially reduce integrity risks while preserving innovation space.

This policy brief provides an evidence-based assessment of AI's impact on Kenya's STI sector and recommends governance measures that safeguard research integrity, promote responsible AI adoption, and position the sector for regional and global competitiveness.

3. SITUATIONAL ANALYSIS

Kenya's STI sector spans universities offering AI and machine learning programmes, research institutes employing data-driven methods, private-sector actors, government, researchers, and society, supported by emerging infrastructure. Internet connectivity varies widely across counties (64.7 per cent in Nairobi versus 9.1 per cent in West Pokot) (Communications Authority of Kenya, 2024), and domestic high-performance computing capacity remains limited.

AI applications across the STI sector include: health research (AI-assisted diagnostics, genomic analysis, epidemic modelling, and drug repurposing, directly supporting localised healthcare sovereignty); agricultural research (machine learning for crop disease prediction, precision farming, and climate-smart advisory, contributing to national food security under BETA); environmental research (satellite imagery analysis for biodiversity monitoring and deforestation tracking); engineering research (digital twin applications and predictive maintenance modelling); and social science research (natural language processing, sentiment analysis, and demographic modelling). The policy and governance landscape includes the National AI Strategy 2025–2030, the Data Protection Act 2019, the Computer Misuse and Cybercrimes Act 2018, and the Kenya Bureau of Standards KS 3007:2025 (Code of Practice for AI Applications, a voluntary national standard); however, no AI-specific research governance guidelines exist.

4. METHODOLOGY

This policy brief is based on desktop research and literature review of national, continental and international AI governance frameworks, supplemented by comparative analysis of AI-in-research governance in selected jurisdictions. The jurisdictions examined include the European Union, South Africa, and Singapore, selected for their contrasting regulatory approaches

to AI in research contexts. The reference instruments are listed in the References section.

5. FINDINGS

5.1 Opportunities for the RSTI Sector

AI compresses research timelines in drug discovery, crop genetics, and climate modelling, while lowering barriers for researchers at under-resourced institutions by enabling sophisticated data analysis and literature review without expensive infrastructure. This is especially significant for county-level research hubs and institutions outside Nairobi. If capacity-building is designed inclusively (with explicit targets for women, youth, and researchers in underserved counties), AI can narrow rather than widen existing capacity gaps. Stakeholders across the sector emphasise that reproducibility standards, including code sharing, data-provenance documentation and hyperparameter disclosure, are essential to sustain the credibility and international standing of Kenyan science in AI-intensive fields. Kenya's combination of an established AI strategy, a mature research governance system, and research capacity the country to set continental standards for responsible AI in research, attracting international partnerships and funding.

5.2 Governance Gaps

The review identified seven principal governance gaps in the RSTI sector's current framework for AI-assisted research:

5.3 Existing Legal Architecture

The STI sector's existing legal and institutional framework provides the foundation upon which AI-specific research governance can be built. The framework comprises both binding regulatory instruments and soft-law guidance. On the regulatory side, the STI Act, Cap. 511, provides the legal basis for research authorization; the Data Protection Act, Cap. 411C, governs data processing principles applicable to research data; and the Computer Misuse and Cybercrimes Act, Cap. 79C, addresses digital security for research infrastructure. On the soft-law and policy side, the National AI Strategy 2025–2030 identifies research and development as a strategic priority, the Kenya Bureau of Standards KS 3007:2025 (Code of Practice for AI Applications) provides voluntary technical standards guidance (though KS 3007 addresses general-purpose AI deployment practices rather than the research-specific governance mechanisms, such as mandatory disclosure, bias auditing, and reproducibility standards, that the STI sector requires) and the UNESCO Recommendation on the Ethics of AI (2021), endorsed by Kenya, provides a normative framework for AI governance. These instruments, taken together, create a legal environment conducive to developing AI-specific research governance, but none individually addresses the operational research-governance mechanisms required.

6. CHALLENGES

Despite Kenya's favourable AI-readiness indicators, four clusters of challenges threaten to undermine the benefits of AI-enabled research if left unaddressed.

- **Infrastructure.** Kenya's digital infrastructure is unevenly distributed, with wide connectivity disparities across counties (64.7 per cent in Nairobi versus 9.1 per cent in West Pokot) (Communications Authority of Kenya, 2024). With Africa holding less than one per cent of global data centre capacity, Kenyan researchers face severe constraints on compute resources for AI-intensive work. Domestic high-performance computing capacity remains limited, underscoring the need for dedicated HPC access for the STI sector.
- **Human resource capacity.** A shortage and brain drain of AI-skilled researchers, and uneven capacity between Nairobi-based and other institutions compound the infrastructure challenge. Without dedicated capacity-building programmes targeting the STI sector, the gap between institutions with AI-ready workforces and those without will continue to widen.
- **Research integrity.** Generative AI can produce academic text indistinguishable from human-authored work, fabricate plausible datasets, and embed undisclosed biases in analytical outputs. Ghost authorship and the reproducibility crisis in AI research raise fundamental accountability questions. Fewer than one in three sub-Saharan African universities have clear AI governance frameworks (Sangwa et al., 2025), reinforcing the urgency of national guidelines establishing mandatory disclosure, reproducibility standards and researcher accountability.
- **Bias, fairness and data sovereignty.** AI systems trained on Global North data produce biased results in African contexts: health diagnostics, agricultural models and NLP tools that exclude African realities. The extraction of African research data without adequate consent or benefit-sharing compounds these concerns. The AU Data Policy Framework and the African Declaration on AI both call for sovereign data governance.

Table 1: Governance Gaps and Proposed Instruments

Governance Gap	Proposed Instrument	Delivery Mechanism
Category A: Sector-Wide Policy Deficits		
No national AI-in-research standards	National Guidelines for Responsible AI Use in Research	Published sector-wide guideline
No bias-auditing requirements	Bias and fairness review checklist	Integrated into ethics review of proposals
Unclear liability for AI outputs	Researcher accountability framework	Authorization conditions and guideline annex
No data-provenance standards	AI training-data sourcing requirements	Research authorization requirements
No risk-based classification of AI research applications	Tiered governance system (high/medium/low risk)	Risk assessment matrix in National Guidelines

Category B: Regulatory and Administrative Adjustments		
No AI disclosure in research proposals	Mandatory AI declaration fields	Revised research authorization requirements and application process
Research authorization lacks AI-risk review criteria	AI risk-assessment protocol	Updated proposals review guidelines

7. POLICY RECOMMENDATIONS

Thirteen recommendations are organised under four themes. All follow a risk-proportionate approach: AI applications with higher potential impact on human subjects, population-level decisions or critical infrastructure require more stringent disclosure, review and oversight than low-risk uses.

Theme A: Governance and Ethics

- **Develop National Guidelines for Responsible AI Use in Scientific Research.** .A multi-stakeholder drafting team (drawn from universities, research institutes, private research entities, data-protection authorities and relevant regulators) should develop risk-proportionate guidelines covering mandatory AI disclosure, reproducibility requirements (code sharing, data provenance, hyperparameter disclosure), ethical review criteria, bias and fairness auditing, data-sovereignty provisions, and researcher accountability.
- **Integrate Mandatory AI Disclosure into Research Authorization.** Regulatory bodies must implement standardised disclosure mechanisms within the research authorization process, requiring declaration of all AI tools, models, and datasets at the point of application.
- **Establish AI-Risk Assessment in Ethics Review.** All research regulatory bodies should integrate AI-risk assessment into scientific and ethical review criteria, supported by a standardised checklist and sector-wide training programme.
- **Establish a National AI Advisory Committee on Research.** A multi-stakeholder advisory body should be constituted to serve the STI sector. It should comprise representatives from universities, research institutes, private research laboratories, civil society, professional bodies and relevant regulators. Its core functions: advise on AI-in-research standards, monitor emerging risks, and support periodic updating of national guidelines. It should be positioned as a sector-wide body, not internal to any single institution.

Theme B: Capacity and Infrastructure

- **Launch a national AI research skills programme** in partnership with universities, relevant government agencies, and development partners, targeting 150–300 researchers annually by year three, with explicit participation targets for women, youth, and underserved-county researchers.
- **Advocate for dedicated HPC access** for the STI sector, building on existing national AI infrastructure initiatives and partnerships.
- **Support development of African-contextualised AI research datasets** in priority sectors (health, agriculture, environment) through coordination among relevant research funding and coordinating bodies.
- **Address infrastructure barriers to AI-enabled research.** Relevant national and county-level authorities should prioritise reliable electricity supply and broadband connectivity for research institutions, particularly those outside major urban centres, as preconditions for meaningful AI adoption in the STI sector.

Theme C: Collaboration and Funding

- **Formalise AI research partnerships** by leveraging existing multilateral and bilateral frameworks, regional AI forums, and international cooperation agreements.
- **Establish an AI Research Excellence Centre.** Subject to funding, conduct a feasibility study for a national AI research coordination centre, potentially linked to existing national technology infrastructure.

Theme D: Inclusion and Sovereignty

- **Embed inclusion targets across all initiatives.** All capacity-building, training, and funding allocations must include explicit participation targets for women, youth, and underserved-county researchers, embedded in funding criteria across national research funding, development partner and private-sector programmes.
- **Incorporate data-sovereignty requirements into the National Guidelines,** addressing data-provenance documentation, consent and benefit-sharing, cross-border transfer restrictions, and local AI training-data development.
- **Develop an AI IP framework for research** covering intellectual property rights for AI-generated and AI-assisted research outputs.

8. ACKNOWLEDGEMENT

The development of this policy brief was undertaken under the guidance and support of **Dr. David Ngigi, Ag. Director General, NACOSTI**.

This policy brief was prepared through the collective efforts and valuable contributions of the following NACOSTI officers:

Dr. Benson Mburu, Godfrey Kalerwa, Julius Mwangi, Carolyne Nekesa, Teresia Nyawira, Ezekiah Gatheru, Lilian Awala, Njuguna Kiuna, Lourine Auma, and Mitchell Gakii.

Their expertise and commitment in the development of this policy brief are acknowledged and appreciated.

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