Artificial Intelligence Fertilizing the Agricultural Sector

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Lead on the Development of the National AI Policy

Event by:

FERTASA
Fertilizer Association of Southern Africa

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WHAT TO EXPECT

- Background & Intention of the Policy
- A National Vision for AI
- How We Went About Crafting This Policy
- Contents Of The Policy
  - The Key Pillars
  - Regulatory ecosystem
- Where To From Here?

INTENTION OF THE NATIONAL AI POLICY

Intergenerational Equity

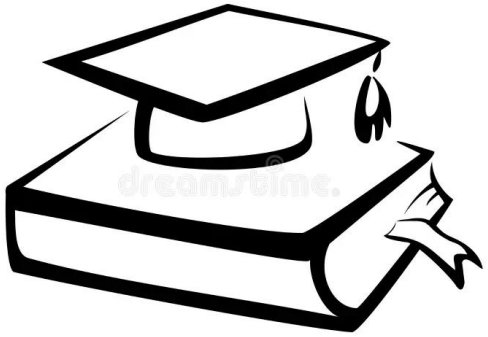
(ensuring that both the benefits / opportunities and harms / risks of AI are fairly distributed across generations—both present and future)

Drive Economic Growth	Enhance Societal Well-being	Position South Africa as Leader in AI Innovation

NATIONAL VISION FOR AI POLICY + CRITICAL SECTORS

AI for inclusive economic growth, job creation, cost reduction and a developing Africa.

Education	Healthcare	Agriculture



Public Administration implementation as a key lever or tool

AI IN AGRICULTURE – WHY IT MATTERS

- Agriculture employs millions in SA and underpins food security.
  - AI-driven forecasting of food demand, supply chains, and climate risks.
  - Early warning systems for droughts and floods.
  - Supports government food security strategies and resilience planning.
- AI can improve productivity, reduce waste, and tackle climate change effects.
- Links directly to soil health, GHG reduction, and sustainability.

THE USE OF AI IN AGRICULTURE AS ENVISAGED IN POLICY

- **Precision agriculture**: AI models predict fertilizer needs, reducing overuse and improving soil health.
- **Soil fertility monitoring**: AI sensors + drones can optimize application and prevent nutrient depletion.
- **Sustainability link**: Supports fertilizer efficiency, reducing greenhouse gas emissions and costs
- **Preliminary Programme**: Data-driven insights for climate-smart agriculture and regenerative practices.

- **Develop Agri-AI implementation strategies**: sector-led, aligned with farmers' needs.
- **Support for AI innovation in agri-tech startups**: from soil data analytics to supply chain optimization.
- **Ensure inclusive adoption**: smallholder farmers, cooperatives, and women in agriculture benefit from AI tools.
- **Build trust**: responsible AI in monitoring, surveillance, and market systems.

6 KEY PILLARS OF THE NATIONAL AI POLICY

	Strategic Pillars	Strategic Building Blocks
1	Capacity and Talent Development	i. Education, Training and Industry Collaboration ii. Digital Infrastructure
2	AI for Economic Transformation	i. Research, Development, and Innovation ii. AI for Startups, SMEs and Innovation
3	Responsible Governance	i. Safety and Security ii. Privacy and Data Protection iii. Professional Responsibility
4	Ethical and Inclusive AI	i. Ethical AI Guidelines Development ii. Fairness and Mitigating Bias
5	Cultural Preservation and International Integration	i. Promotion of Cultural and Human Values ii. Global Collaboration and Competitiveness
6	Human-Centred Deployment	i. Human Control of Technology (Human-Centred Approach in AI Systems) ii. Transparency & Sufficient Explainability iii. Public Sector Implementation

CAPACITY AND TALENT DEVELOPMENT

To ensure that South Africa has a robust AI talent pool

To advance technological capabilities and drive innovation

Educational & Training Initiatives: Integrate AI education across all levels, develop specialized & continuous training. Academia & Industry collaboration + international exchange for skills. AI Institute of SA (with Hubs).

Workforce Readiness & Inclusivity: Informal learning & micro-credentialing. Map and reskill sectors impacted by AI (finance, agriculture, mining, logistics). Retain and attract AI talent. Inclusive AI tools for children and persons with disabilities.

Computing & Connectivity: Invest in supercomputing infrastructure and national data centres. Expand broadband and 5G access, prioritize last-mile connectivity. AI hubs in underserved regions. Ensure universal access to affordable internet.

AI Ecosystem Support: Take measures to ensure energy-efficient AI infrastructure and trusted data repositories. Address hardware dependence and encourage open data initiatives. Sector-specific regulatory alignment.

AI FOR ECONOMIC TRANSFORMATION

To advance technological capabilities and drive innovation

Advancing AI Research: Establish dedicated AI research centres with appropriate funding. Public-private partnerships for innovation. Support local AI startups with financial incentives and regulatory sandboxes.

Future-Proofing AI Development: Prioritize open-source tools and emerging technologies like quantum computing. Develop AI maturity assessment indexing. Flexible regulatory approach for AI foundation models.

To create an environment conducive to AI innovation

Support AI Startups. AI accelerators and regulatory sandboxes. Provide funding incentives for SMEs and Startups. Allow govt to procure from entities (businesses & academic institutions) which have received govt support.

Open Data & Innovation: Promote open data initiatives for fair AI development. Support inclusive entrepreneurship in AI sectors.

RESPONSIBLE GOVERNANCE

To protect citizens and infrastructure

AI Risk Management: Cybersecurity protocols & AI safety guidelines. An AI insurance fund for liability protection.

AI Safety Infrastructure: National AI Safety Institute. Mitigate risks from deepfakes, misinformation & child-targeted AI.

Data Governance & Compliance: Strengthen existing laws (POPIA, Cybercrimes Act). Ensure transparent AI data usage & cross-border data security.

To safeguard personal information and to ensure protection of data in general

To foster responsible AI development and use

AI & Intellectual Property: Address AI's impact on copyright, trademarks & fair use. Protect citizen data in public procurement. Regulate AI software platforms for responsible data management.

AI Professional Standards: AI professional accreditation bodies & AI code of conduct for developers.

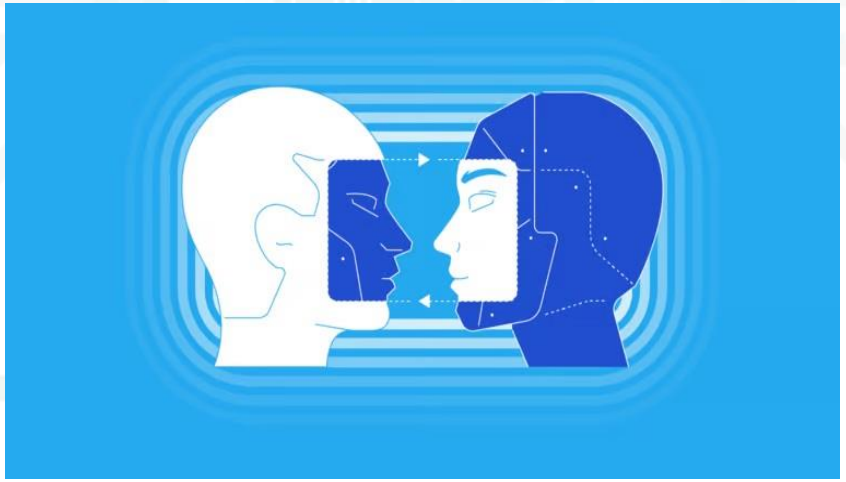
Ethical Training & Accountability: Integrate AI ethics into professional development. Ensure clear accountability for AI-driven decisions.

ETHICAL AND INCLUSIVE AI

To ensure responsible and ethical development, deployment and use of AI

Responsible AI Deployment:
Focus on ethical AI design principles: fairness, transparency, reliability & accountability. Regulate high-risk AI applications with "proportional controls."

AI Governance & Oversight:
Independent AI Ethics Board & Regulatory Authority. AI ombudsperson & bias auditing systems. Integrate global best practices (EU-GDPR, AU-CAIS).



To ensure equitable AI deployment

Inclusive AI Data Sets:
Develop diverse, representative African datasets to prevent biases. Regular tests of AI models for unintended discrimination.

Equity in AI Deployment:
Gender & human rights impact assessments. Support AI solutions that promote social inclusion & disability support.

CULTURAL PRESERVATION AND INTERNATIONAL INTEGRATION

To align AI development with societal values

AI for Cultural Preservation: AI tools for digitizing indigenous languages, music and art. Support research on African language models. Reasonably make available the datasets in public broadcaster for LLM Development

AI for Social Development: Leverage AI for rural development and accessibility. Ensure AI aligns with Ubuntu principles of fairness and community.

To position South Africa as a regional AI leader

AI Leadership in Africa: Align with AU's Continental AI Strategy and Global Digital Compact. Promote regional AI collaborations and interoperability.

AI Policy Alignment: Adapt South African AI governance to global standards (GDPR, DSA). Ensure fair wages and rights for South African AI workers (eg equivalent wages as those in similar roles overseas).

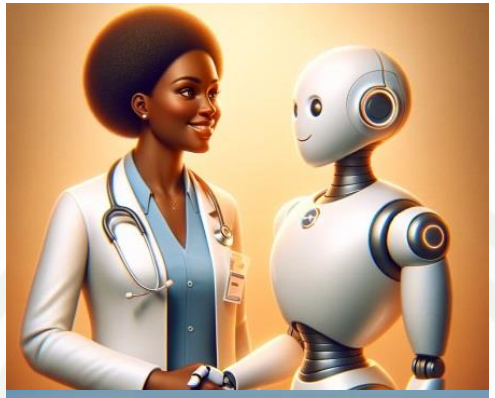
HUMAN-CENTRED DEPLOYMENT

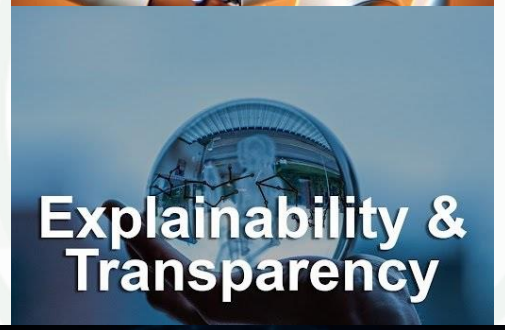
To maintain human oversight over AI	To build public trust in AI	To enhance government efficiency through AI

Human Oversight in AI: Apply Human-in-the-Loop (HITL) principles for high-risk AI. Ensure human intervention remains a safeguard.

AI and Decision-Making Frameworks: Establish thresholds for human oversight in AI applications. Human Rights Impact Assessments.

AI Accountability Measures: Mandate sufficient explainability in AI decision-making. Apply bias detection & mitigation standards.





Public Awareness & Trust: Require plain-language AI notifications. Promote public transparency through AI impact assessments.

AI in Governance: AI for predictive analytics, automation & efficient service delivery. Ethical & accountable AI deployment guidelines. Train public servants in AI usage.

AI for Public Value: AI for equitable asset distribution & cooperative-based production. AI Maturity Assessments for policy refinement. Community engagement platforms for AI transparency.

NATIONAL AI POLICY PROCESS

FROM FRAMEWORK - TO DRAFT NATIONAL AI POLICY

2024/2025

NATIONAL AI POLICY SUBMITTED TO CABINET FOR APPROVAL

2025/2026

1. Stakeholder Engagement
2. Social Economic Impact Assessment System
3. Cluster Approval Process
4. Public Consultation
5. Cabinet Approval

VARIOUS SECTORAL AI STRATEGIES DEVELOPED

2026/2027

NATIONAL AI POLICY-BASED REGULATIONS & GUIDELINES DEVELOPED

2026/2027

NATIONAL AI POLICY IMPLEMENTED

2026/2027

AGRICULTURE AS DRIVER OF TRANSFORMATION

- The Policy will be Presented to the Next Cabinet Meeting…. and hopefully GAZZETTED FOR PUBLIC COMMENT FOR 60 DAYS.
- Agriculture is not a bystander. It is a driver of AI transformation.
- The AI Policy sees fertilizers, soil health, and crop management as testbeds for AI-enabled sustainability.
- Together, we can make South Africa a leader in AI-powered, sustainable agriculture.
- So, develop your inputs to the Policy, and to the AI implementation strategy of the SECTORS which you operate in.

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