African Regional Workshop on SciTinyML
29 April

The Challenge

Fundamental research and development conducted at academic and research institutions in Africa is at risk.

AI resources (compute power, data accessibility, engineering) are out of reach and restraining development.
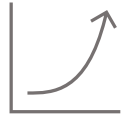
Imbalance in AI resources and innovation between those in Africa and the rest of the world.

The Solution

An AI operation that supports the needs of academia and industry throughout Africa.

Provide compute power, data access and engineering to academia and industry.

Democratize AI development across Africa.

Support a new generation of AI researchers and AI enabled scientists.

Enable next-generation research at African institutions and power the next-generation of breakthroughs in AI technologies and applications.

Stanford: National Research Cloud

Headlines

Largest and most comprehensive undertaking of its kind in Africa's history.

Africa's only shot at turning 4IR / machine learning / AI revolution into reality.

In development for 5 years. Funded out of the pockets of those involved for the greater good.

Primary operations and infrastructure to be based at Wits University.

Wits University's moon-shot project to significantly impact not only the University and South Africa, but the entire continent.

Component Overview

- Ideation
- Product creation
- Start-up portfolio
- Monthly classes, events and workshops
- Academic programmes

Cirrus

Cirrus FOUNDRY
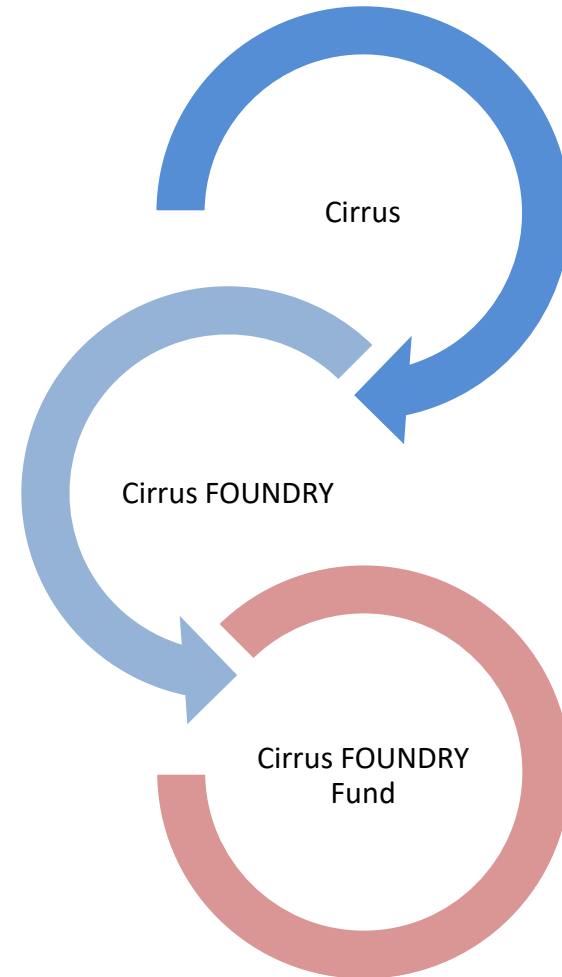
Cirrus FOUNDRY Fund

- HW / SW / Data / ML Engineering
- Global Collaboration Network
- Partner and Affiliate programmes
- Co-development programme
- Open Learning programme
- Summer and Winter programmes
- Salons and teatime sessions
- Academic programmes
- Research to Communication programme
- Digital Asset Locker
- Sandbox
- HPC platform
- Data management platform
- Research support

- Pre-seed
- Seed

Research to Development

Stage of Business

- Start-up Company
- Product/Market Fit Discovery
- No Business Activity

Cirrus

Cirrus FOUNDRY

| No tech R or D | Scholarly Research | Translational Research | New Product R & D | Commercial Product (1.0) |

Stage of Technology
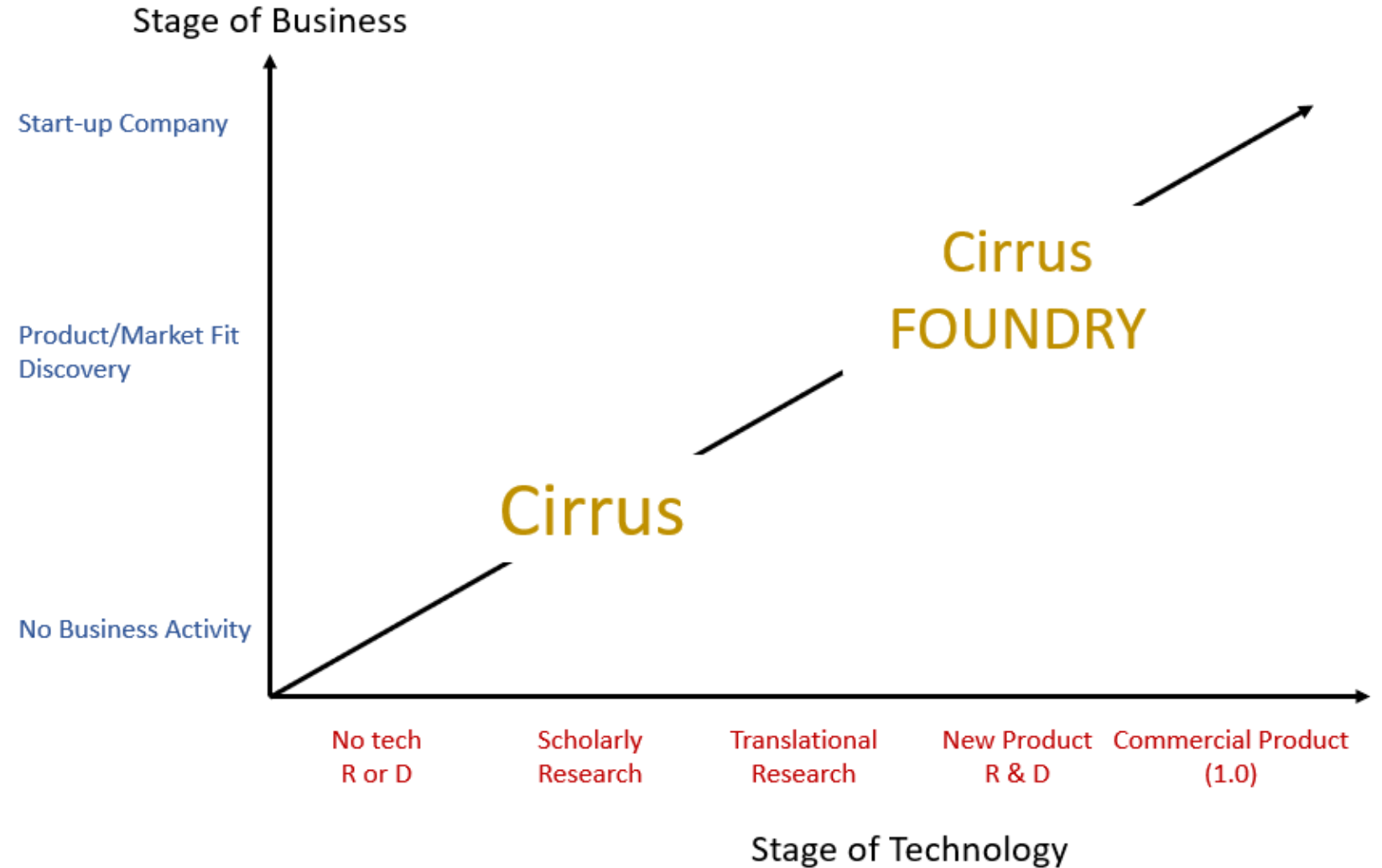
In the process of building the AI Africa Consortium.

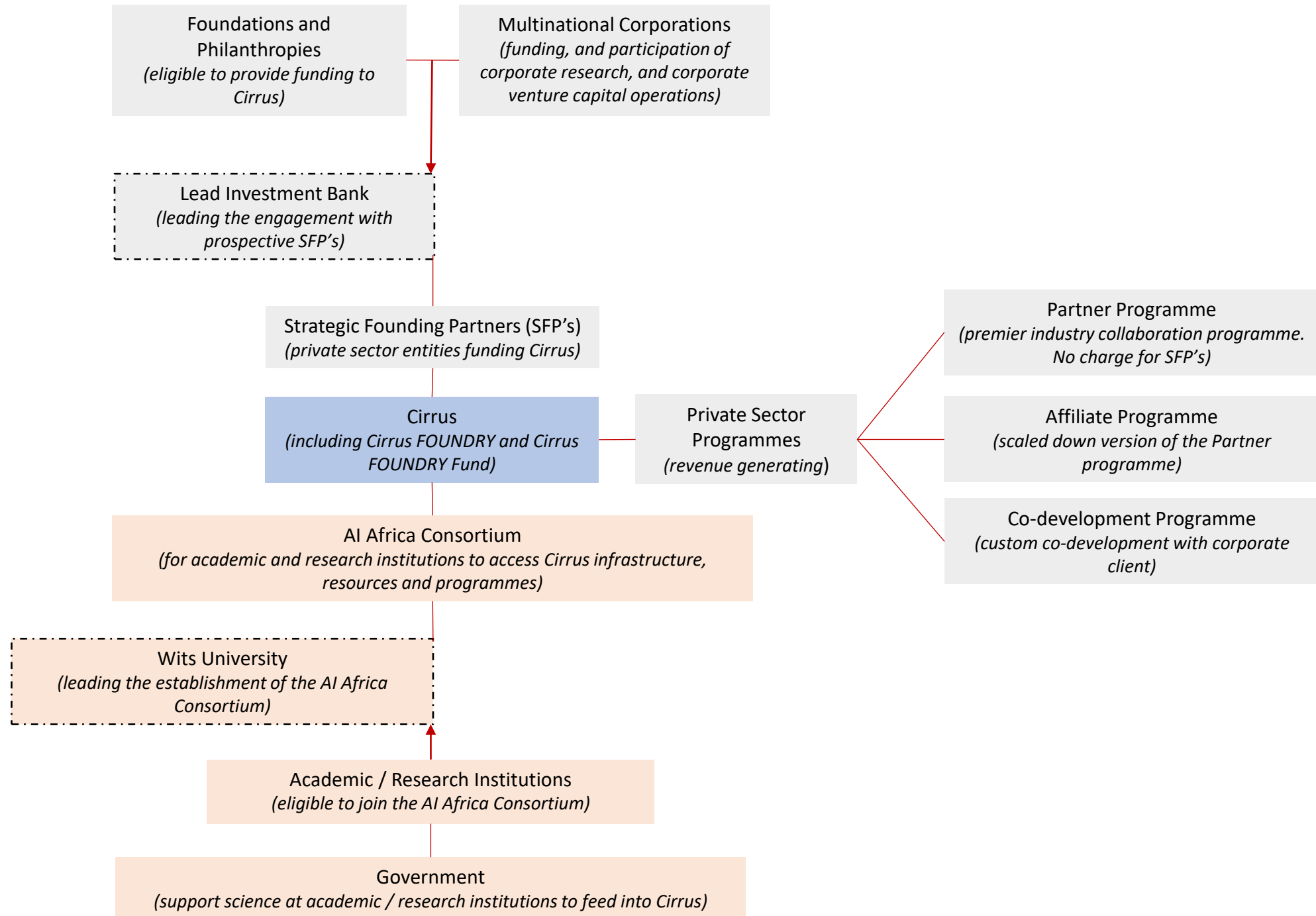Over 200 academic and research institutions from Africa and around the world are being invited.

Starting with the African Research Universities Alliance (ARUA).

Several Embassies and Consulates are joining Wits to assist.

Consortium website: https://aiafrica.ac.za/

Schematic Overview

Foundations and Philanthropies
(eligible to provide funding to Cirrus)

Multinational Corporations
(funding, and participation of corporate research, and corporate venture capital operations)

Lead Investment Bank
(leading the engagement with prospective SFP's)

Strategic Founding Partners (SFP's)
(private sector entities funding Cirrus)

Cirrus
(including Cirrus FOUNDRY and Cirrus FOUNDRY Fund)

Private Sector Programmes
(revenue generating)

Partner Programme
(premier industry collaboration programme. No charge for SFP's)

Affiliate Programme
(scaled down version of the Partner programme)

Co-development Programme
(custom co-development with corporate client)

AI Africa Consortium
(for academic and research institutions to access Cirrus infrastructure, resources and programmes)

Wits University
(leading the establishment of the AI Africa Consortium)

Academic / Research Institutions
(eligible to join the AI Africa Consortium)

Government
(support science at academic / research institutions to feed into Cirrus)

Current Activities: TinyML4D

TinyML4D Academic
Network Call:
https://bit.ly/3rWrGcU

Current Activities: AI Testbed Hardware

Graphcore MK1

Graphcore Intelligent Processing Unit (IPU)

1216 IPU Tiles, 14nm

> 23 Billion Transistors

IPU-Links interconnect

Poplar Software stack, PyTorch, Tensorflow

Groq

Groq Tensor Streaming Processor

> 26 Billion Transistors, 14nm

Chip-to-Chip interconnect

GroqWare software stack, Onnx

Habana Gaudi

Habana Gaudi Tensor Processing Cores

7nm

Integrated 100GbE based interconnect

Synapse AI Software, PyTorch, Tensorflow

Science Benchmarks

Benchmark	Science	Task	Owner Institute	Specific Benchmark Targets
CloudMask	Climate	Segmentation	RAL	[link cloudmask specifics](#)
STEMDL	Material	Classification	ORNL	[link stemdl specifics](#)
CANDLE-UNO	Medicine	Classification	ANL	[link candle-uno specifics](#)
TEvolOp Forecasting	Earthquake	Regression	University of Virginia	[link tevolop specifics](#)

Current Activities: SkyDeck

UC Berkley's SkyDeck: Potential to put forward start-ups for interviews.

Current Activities: SAIF

FUNDING OPPORTUNITY - Are you an African based AI Start-up?
Apply for a non-equity micro seed grant from the Swedish AI Fund (SAIF) to kick-start your business.

Apply here:
https://aiexpoafrica.com/2022/03/30/swedish-ai-fund-saif-aims-to-help-early-stage-african-ai-companies/

Current Activities: Remote Excellence Fellowships

ELLIS Unit Nijmegen Remote Excellence Fellowship - 2022

Remote Excellence Fellowships: A remote internship system for talented Masters students to allow students to connect with leading researchers in Europe.

Links

AI Africa Consortium