

TIA Presentation

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Agriculture Business Unit

Student Exposure Workshop



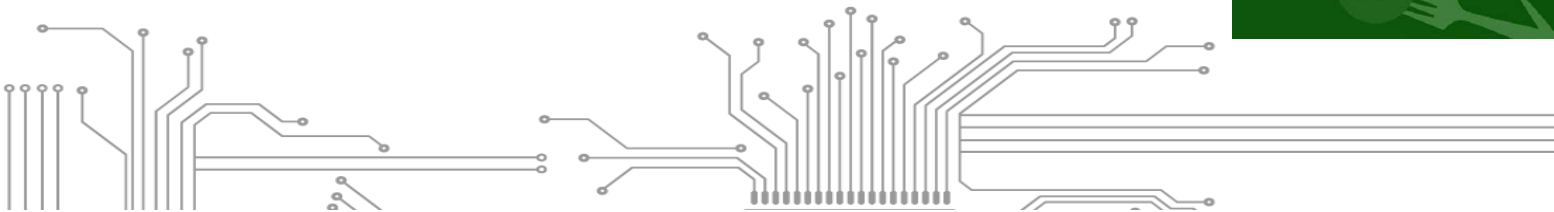
science & innovation

Department:
Science and Innovation
REPUBLIC OF SOUTH AFRICA



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Strategic & Policy Enablers

United Nations: SDGs 2030

- Focus: Economic, social and environmental sustainable development
- Goal 9: Industry, Innovations & Infrastructure

African Union Agenda 2063: 10-year STI Strategy 2024

- Socio-economic transformation for Africa framework
- Promotion of competitiveness through people, innovation & value addition



National Development Plan 2030

- Recognition of STI in tackling the triple challenge
- Phase II: Foundations for more intense improvements in productivity



Bioeconomy Strategy 2013

- Creation of and growth of biotechnology-based industries for significant economic contribution.
- Focus on bio-based resources for economic inclusion and transformation and benefits sharing



White Paper of Science, Technology & Innovation 2019

- The contribution of STI to transformation, inclusivity and stronger linkages with NSI

TIA Strategic Plan 2020 – 2025

- Focus on Commercialisation of public sector R&D, Implementation of Bioeconomy and Technology Stations Programme



Ecosystem challenges

- Booming world population
- Antibiotic resistance
- Natural resources depletion
- Sustained economic growth
- Social growth
 - Unemployment, inequality & marginalisation



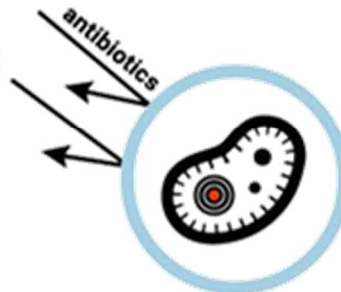
Deforestation and other land use changes



Illegal and poorly regulated wildlife trade



Intensified agriculture and livestock production



Antimicrobial resistance



Climate change

Source: UNEP Frontiers 2016 Report

technology innovation
A G E N C Y
Innovating Tomorrow Together

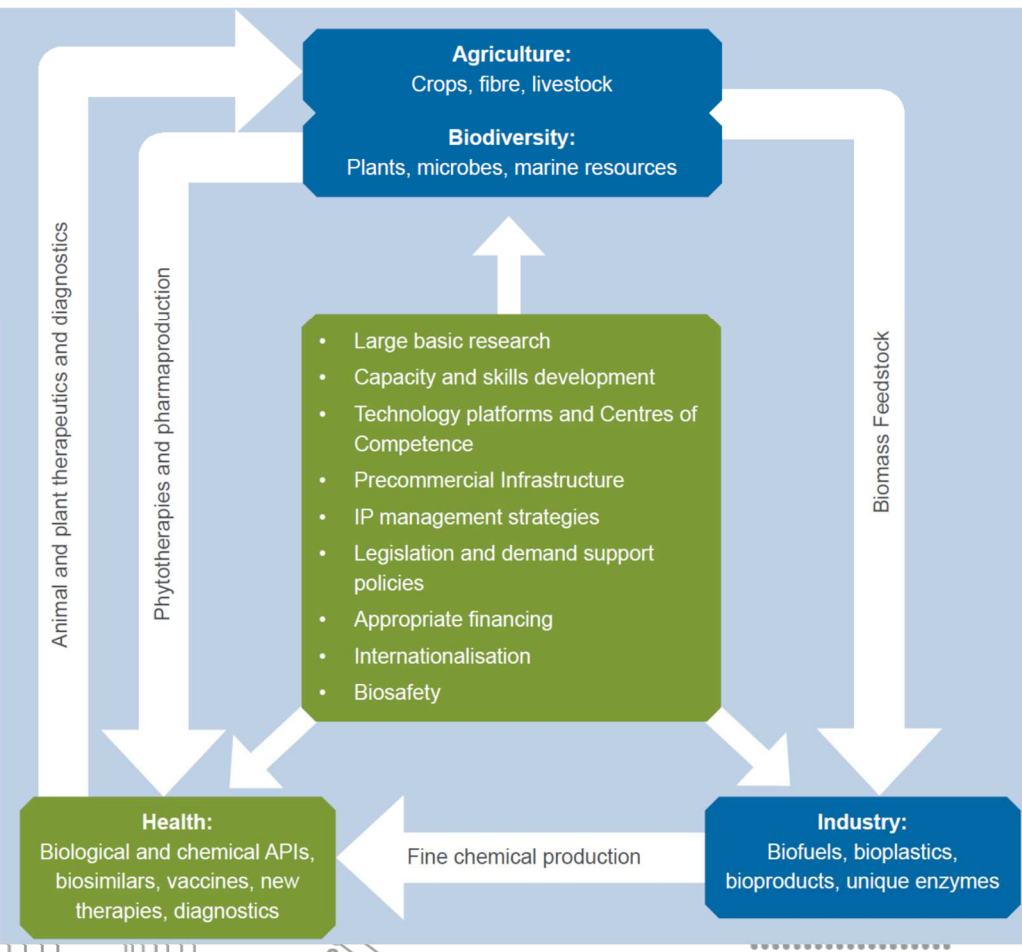
Local context for technology innovation

Problem Statement: Triple Challenges of unemployment, inequality and poverty continue to torment our people

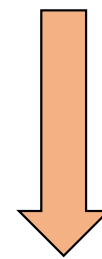
- Unequal distribution of assets, skewed distribution of income and employment
 - Unequal opportunities amongst citizens, inequality in access to public services
 - Segregated planning approaches without viable economic and social linkages to the more economically active areas of the country
 - Poor or lack of access to socio-economic infrastructure
 - Non-inclusive STI system
- NDP states: “*Innovation is the **primary driver of technological growth** and drives higher living standards*”.
 - “*Innovation*” = “*multi-stage process whereby organisations* transform **ideas** into **new/improved products, services or processes** ...*”



Bioeconomy Strategy



- Broad-based economic inclusivity and industrialisation across all sectors



Agriculture
Indigenous Knowledge systems
Industry & Environment
Health

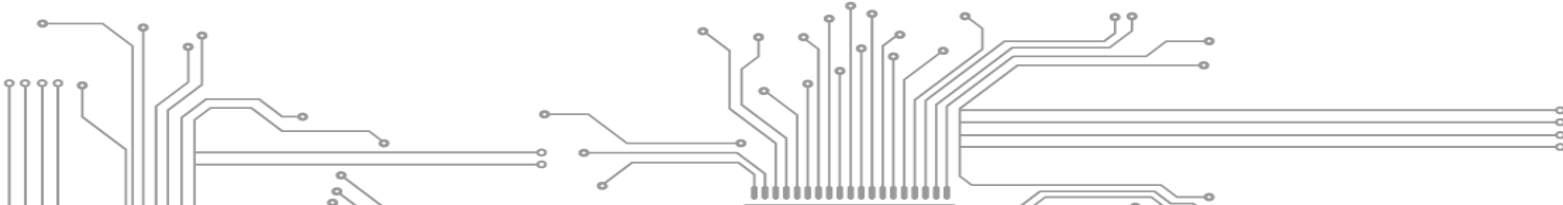
- Creation of new bio-based services, products and innovations for commercial and industrial development and enhance competitiveness

Strategic Innovation Programmes aligned to National Priorities

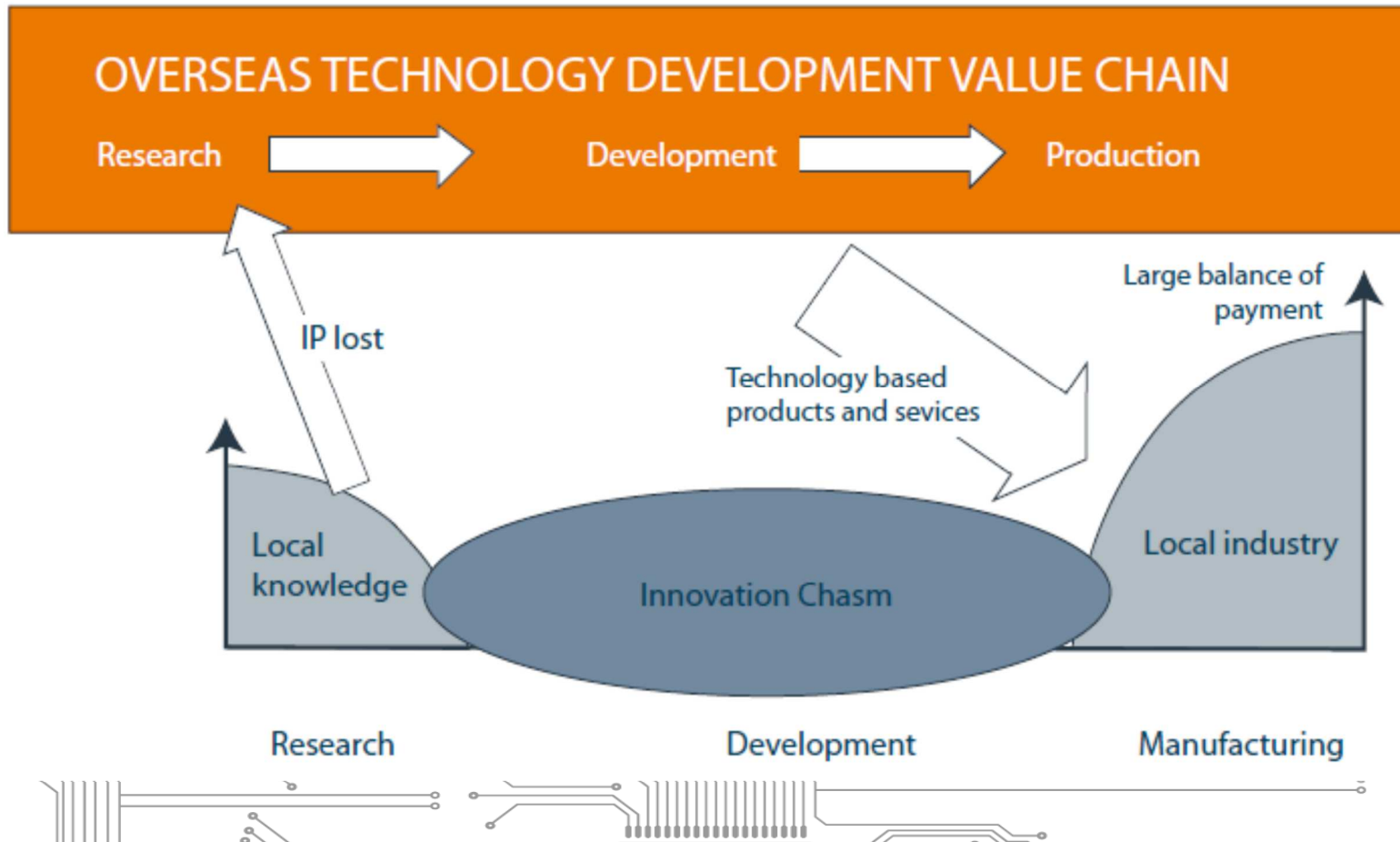
- Crop improvement - wheat, eucalyptus, maize breeding, pest and disease management
- Animal improvement: underutilised livestock populations - poultry and pig industries, game farming, fibre and wool industries.
- Food safety and nutrition – COE, Food and nutrition programs
- Mainstreaming indigenous products and agricultural goods
- Agro-processing programme
- Aquaculture bio-innovation
- Strengthening Industry (revitalisation with alternative, competitive products & processes based on biotechnologies)

Support platforms -

- Genomics; proteomics; metabolomics; metagenomics; bioinformatics) Pilot & demonstration scale facilities
- Entrepreneurial skills - Swiss programme, GAP biosciences.
- Incubation programs - BIDC – project incubation
- Biotechnology & Biosafety communication & marketing) – BiosafetySA.



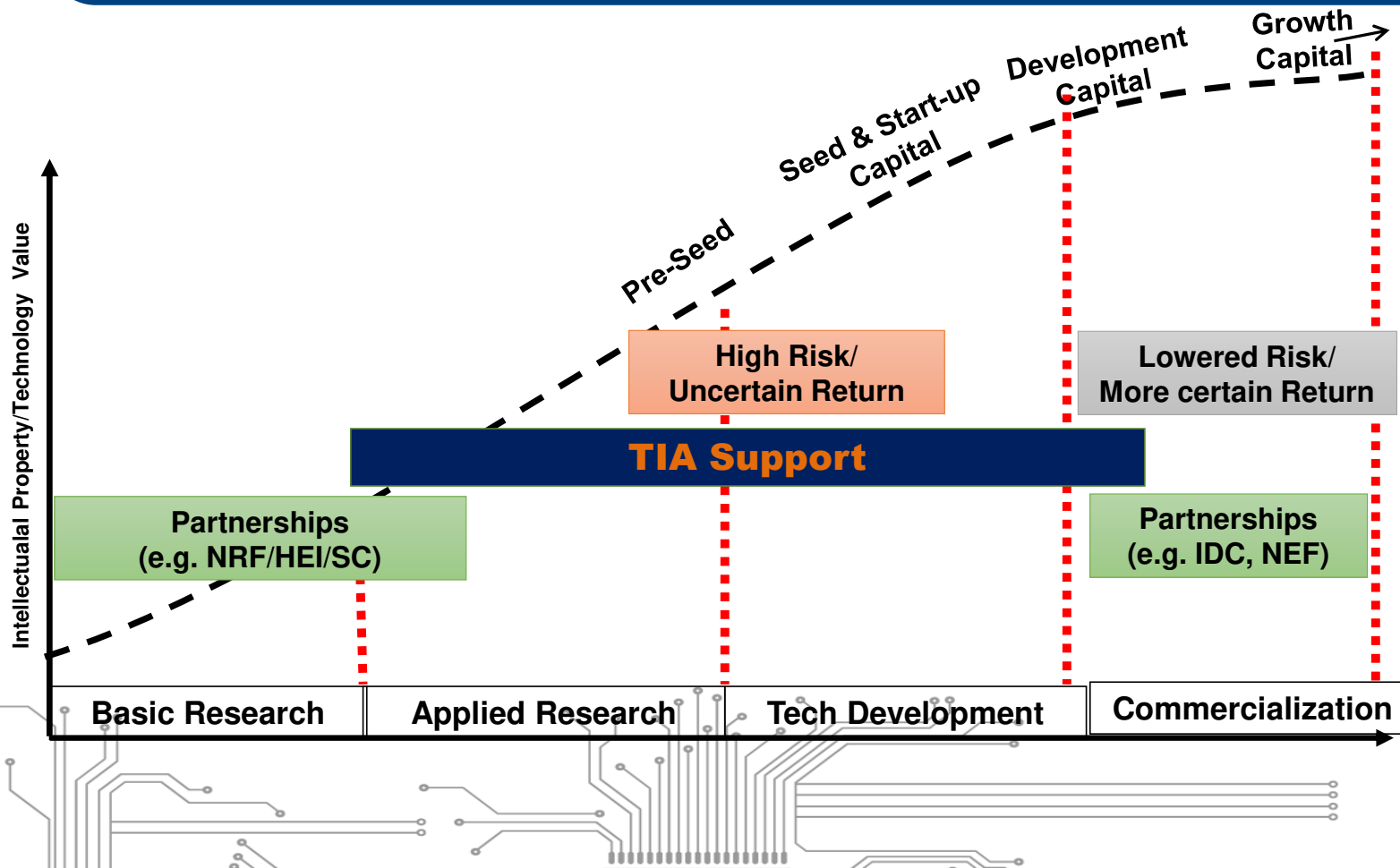
South African innovation chain



Result

- Build up on either side
- Valley where risks go to die = valley of death
- Innovation chasm
- Lack of follow through

South African Value Chain



Focus of TIA financial and non-financial offerings:

Across the *innovation chasm*, operating with the required flexibility along the innovation value chain through mobilising and leveraging national, regional and international partnerships

TIA Mandate: TIA Act No 26 of 2008

ACT

To provide for the promotion of the development and exploitation in the public interest of discoveries, inventions, innovations and improvements, and for that purpose to establish the Technology Innovation Agency; to provide for its powers and duties and for the manner in which it must be managed and controlled; and to repeal an Act; and to provide for matters connected therewith.

Object of Agency

3. The object of the Agency is to support the State in stimulating and intensifying technological innovation in order to improve economic growth and the quality of life of all South Africans by developing and exploiting technological innovations.



Vision:

Be a leading technology innovation Agency that stimulates and supports technological innovation to improve quality of life for all South Africans.



Mission:

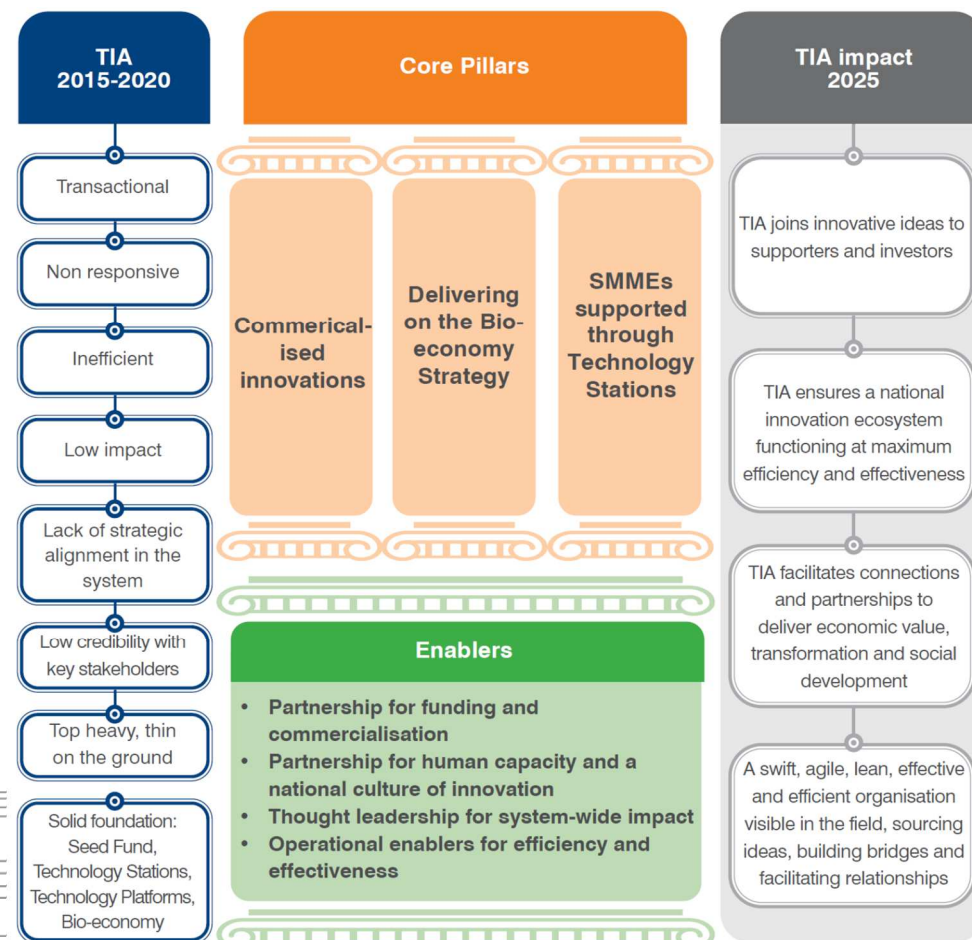
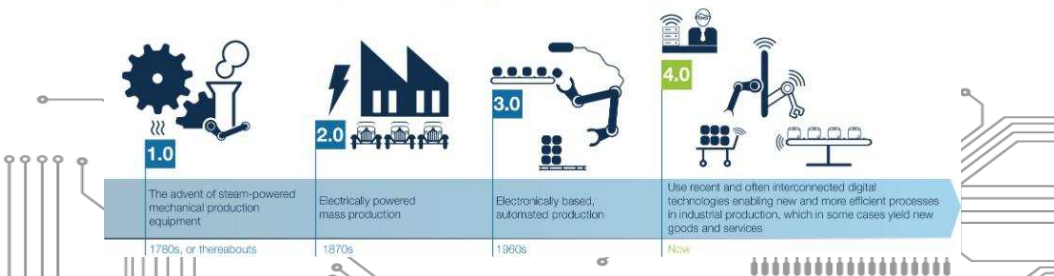
Facilitate the translation of South Africa's knowledge resources into sustainable socio-economic opportunities.

TIA Strategy 2020 - 2025

Alignment to NDP and White Paper on STI

- Accelerate translation and commercialisation of publicly-funded research & innovations
- Intensifying bioeconomy driven efforts for economic growth
- Increase innovative support to SMEs through Technology Stations Programme
- Grassroots innovations for development of local communities

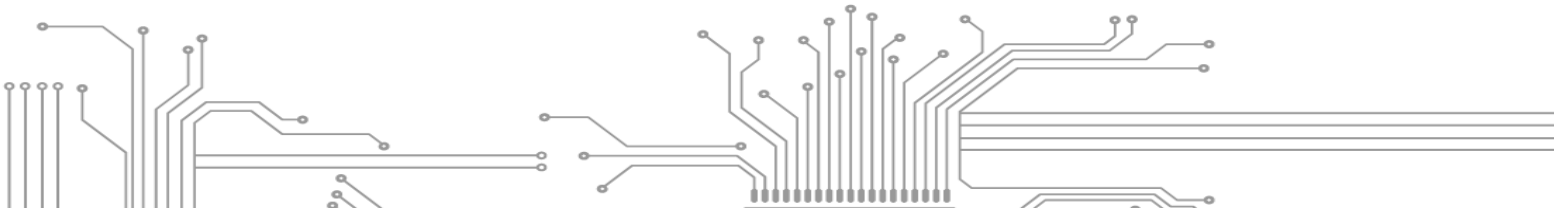
INDUSTRIAL REVOLUTIONS AND "INDUSTRY 4.0"



SEED fund

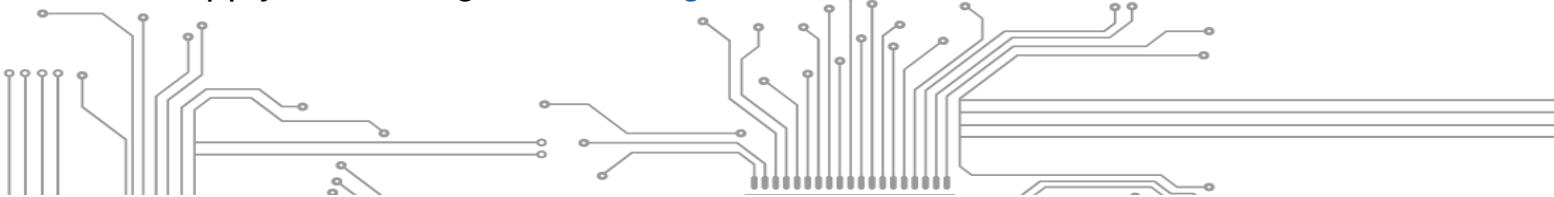
Administered through HEIs and RDAs

- National footprint e.g. HEI OTT and RDAs
- RDAs: Innovation Hub, Smart Exchange, Eastern Cape Developmental Corporation (ECDC), Limpopo Development Corporation (LIEDA), Cape Craft Design Institute (CCDI), Invotech & Free State Development Corporation (FDC)
- Leverage support
- Support throughout the TRLs
- Intellectual property management
- Prototype development, market testing (TRL 2 to 8)
- Enquiries: seedfund@tia.org.za



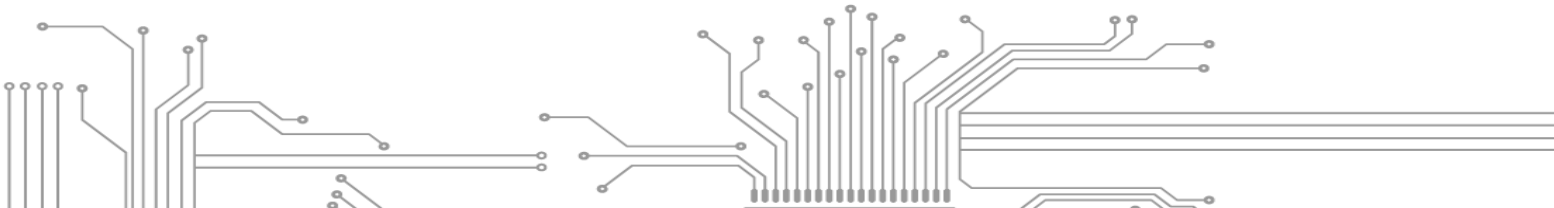
Technology Development Fund

- Most commonly accessed fund
- Technology de-risking (MRL & BRL)
- Requirement: Proof of concept (TRL 4)
 - evidence, typically deriving from an experiment or pilot project, which demonstrates feasibility of an idea/observation
- Funding instruments: conditional levy, loans & equity
- Multiple-rounds of funding towards full development
- Apply for funding: www.tia.org.za

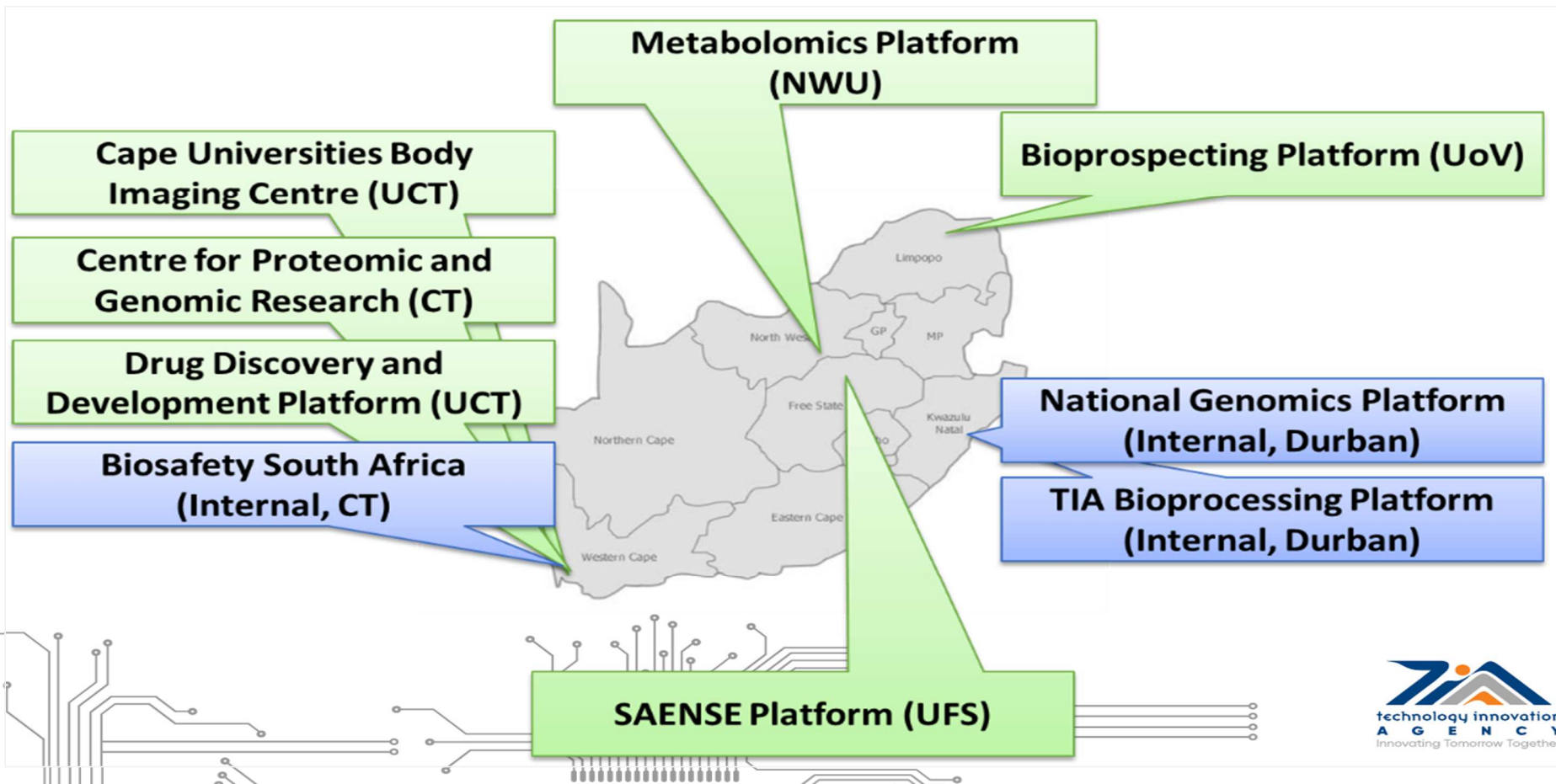


Pre-commercialisation Support Fund

- Bridging the gap between innovations and the market
- Requirement: de-risked technology, business plan, market interactions (TRL8)
- Funding instruments: conditional levy, loans & equity
- Apply for funding: www.tia.org.za

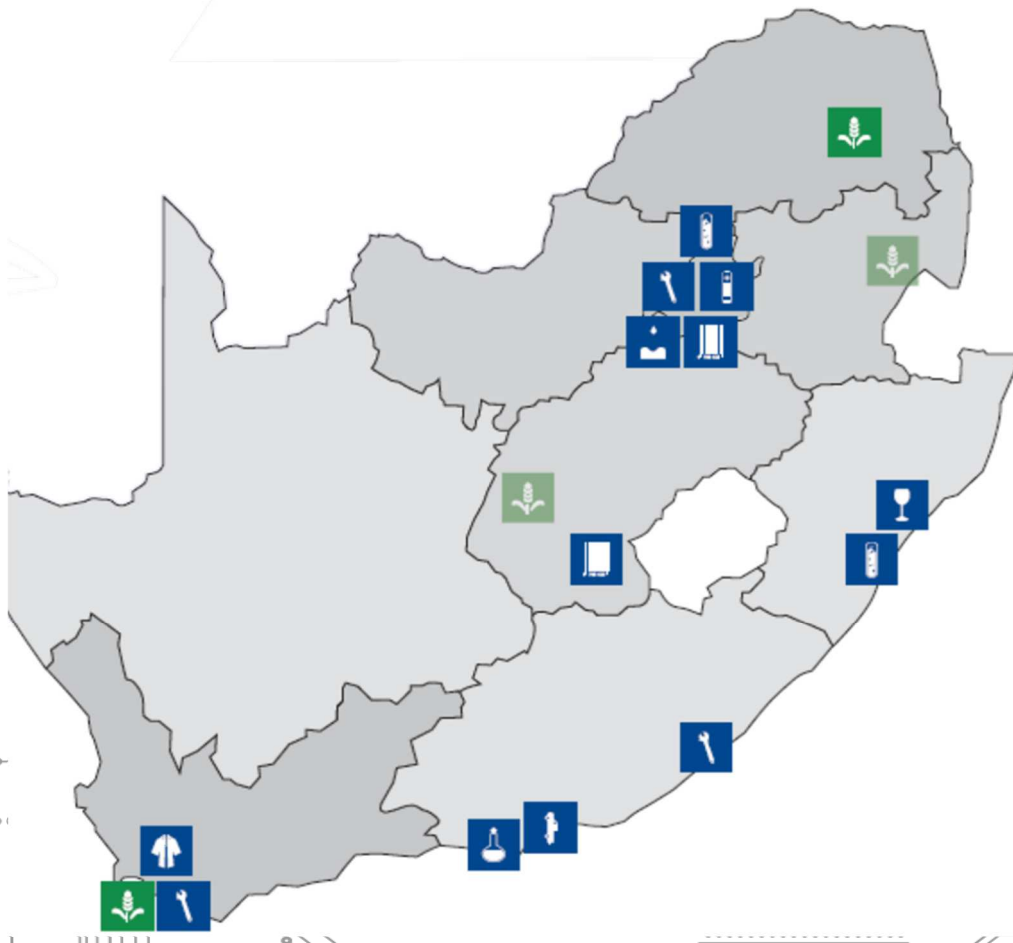


Technology Platforms Programme Footprint



Technology Stations Footprint

Network of 18 TS based at Universities of Technology



Testing and Analytical Services



Technology Demonstration and Training



Rapid Prototyping and Manufacturing



Applied Development, Engineering and Design



Consultation, Technology Audit and Feasibility Study



Research and Development



Process or Product Improvement

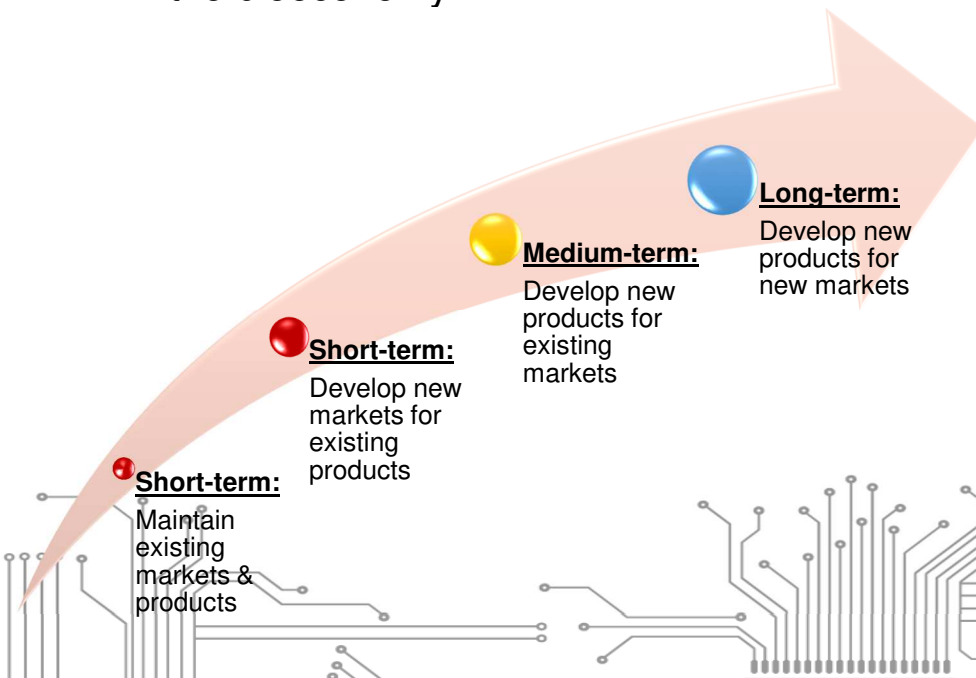
Technology/Technical Support – Focus Areas

Central University of Technology, CUT PDTS	Rapid Prototyping and Product Development
Mangosuthu Technikon, MUT TSC	Chemistry and Chemicals Engineering
Tshwane University of Technology, TUT TSC	Chemistry and Chemical Engineering
University of Johannesburg, UJ MCTS	Light Metals Casting and Foundry Technology
Vaal University of Technology, VUT TSCM	Product Prototyping , Materials Processing Technologies
Cape Peninsula University of Technology, CPUT TSC&T	Clothing and Textile Technologies
Cape Peninsula University of Technology, CPUT Agrifood	Agri Food Processing
Nelson Mandela Metropolitan University, NMMU ACTS	Mechanical System Technologies & Automotive Components
Durban University of Technology, DUT TS RMP	Fibrous Reinforced and Moulded Plastics
Nelson Mandela Metropolitan University, NMMU DCTS	Petrochemicals, Boi-Downstream Chemicals
Limpopo Agrifood Processing Technology Station, UL LATS	Indigenes AgriFood Processing
University of Johannesburg, PEETS	Chemical Processes, Green Energy and Enviromental
Institute for Advanced Tooling (IATs), TUT - Shosha	Skills & Training in TTDM and Advanced Manufacturing
IATs, Stellenbosch University - Stellenbosch	Tooling Technology r&D . RE and Advanced Manufacturing
IATs, Walter Sisulu University - East London	Mould Design, and Product Development

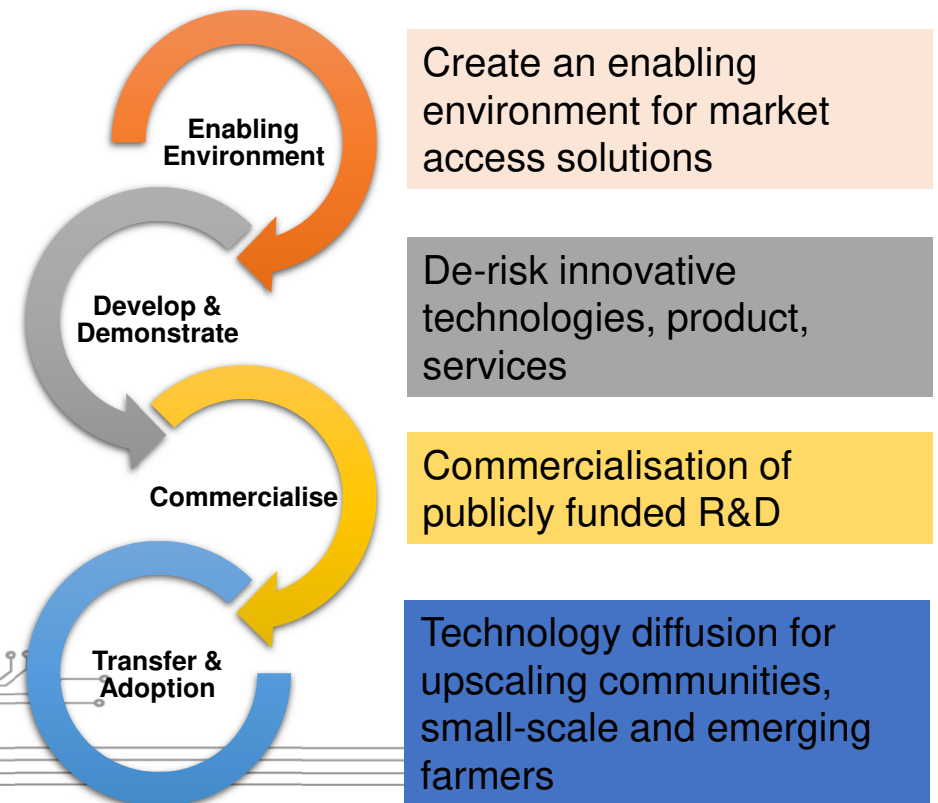
Agriculture Business Unit

Vision

Support the transitioning of the agricultural sector from a basic source of food and feed to a diversified sector as a foundation and driver of the bioeconomy.



Objectives

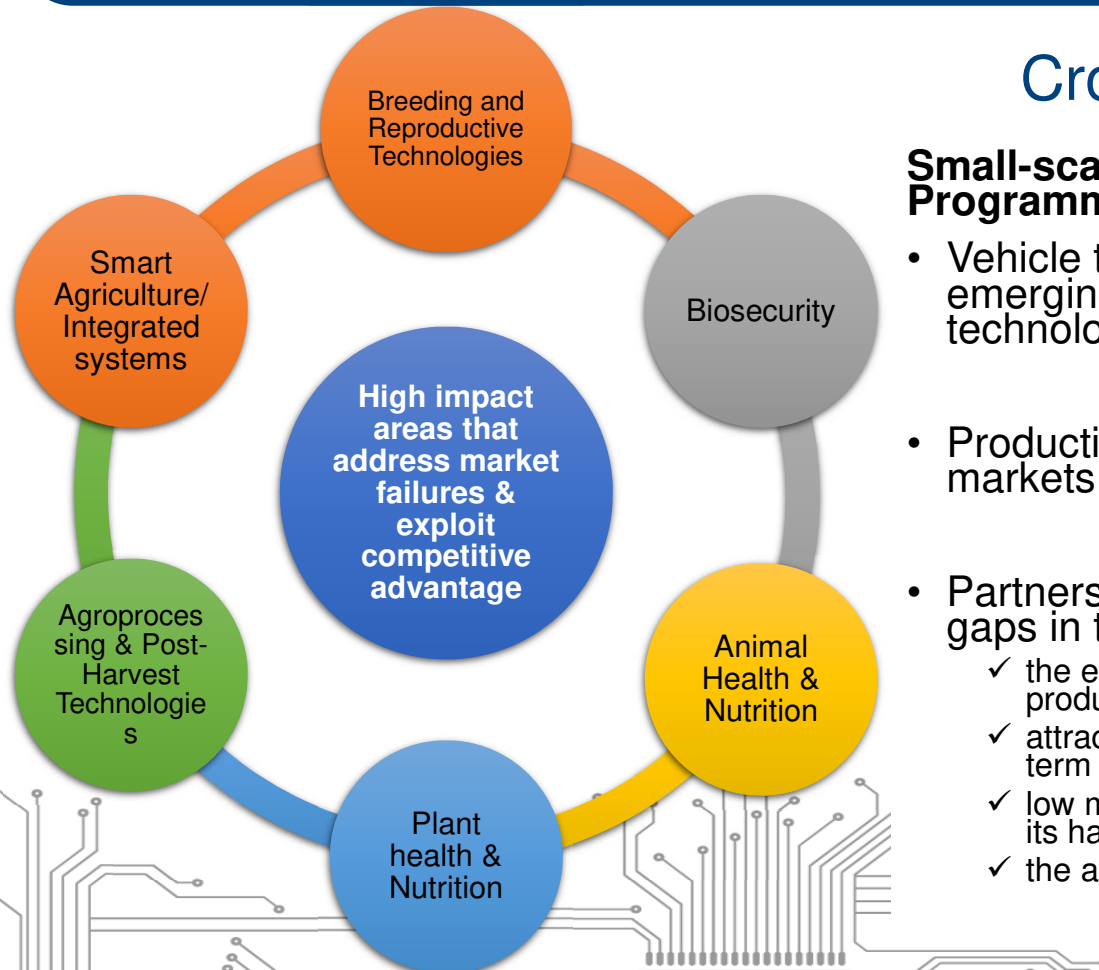


Thematic Areas

Cross-cutting interventions

Small-scale Farmer Technology Diffusion Programme

- Vehicle to economically empower small-scale and emerging farmers with the transfer of TIA supported technologies
- Productivity and profitability, to gain access to markets
- Partnerships: enabling environment by closing all gaps in the value chain
 - ✓ the existence of a real market opportunity for an agricultural produce/commodity
 - ✓ attractiveness and sustainability of such a market in the long term
 - ✓ low maintenance requirement of the crop or livestock due to its hardy genetic traits and
 - ✓ the ability of the initiative to attract participation of key players



Agricultural Bioeconomy Innovation Partnership Programme

ABIPP = instrument to implement the Agricultural Bio-economy

Goal: Increased productivity, food security and sustainable rural development

Principles: Inclusivity, transformation partnerships (STI: White paper) and innovation driving growth of the sector (NDP)

ABIPP funds, co-funds, coordinates, facilitates and actively manages multi-disciplinary, multi-institutional agricultural bio-innovation programmes to ensure:

- New product development,
- New processes, including agro-processing and
- Development and dissemination of technological services

TIA – implementing agent

ABIPP Phase I thematic areas

Crop/Plant improvement, molecular breeding and genome engineering

Enhanced nutrition, nitrogen efficiency, drought tolerance and disease and pest resistance in commodities - wheat, maize, soybean, sorghum, canola, rice eucalyptus, pine and wattle.

Wheat Breeding Platform

Crop Protection

Climate Change Resilience

Animal improvement, molecular breeding and genome engineering

Animal Nutrition – new feed formulations
Developing genomic-enhanced breeding technologies and new traits e.g beef, dairy, vaccines and diagnostic kits

Aquaculture Bio-innovation Programme

Animal Nutrition – new feed formulations
R&D to commercialize new Aquaculture species - scallops, sea urchins, spotted grunter, silver knob, white stump nose and yellowtail

Cross-cutting Initiatives

Value Chain Analysis and Development

Evidence Based models for targeted value chains and determine competitiveness of value chains

Agroprocessing

Rollout of agroprocessing programmes – marula, honeybush, cape aloe

Communication & Marketing of the Bio-economy Bioportal

International Partnerships

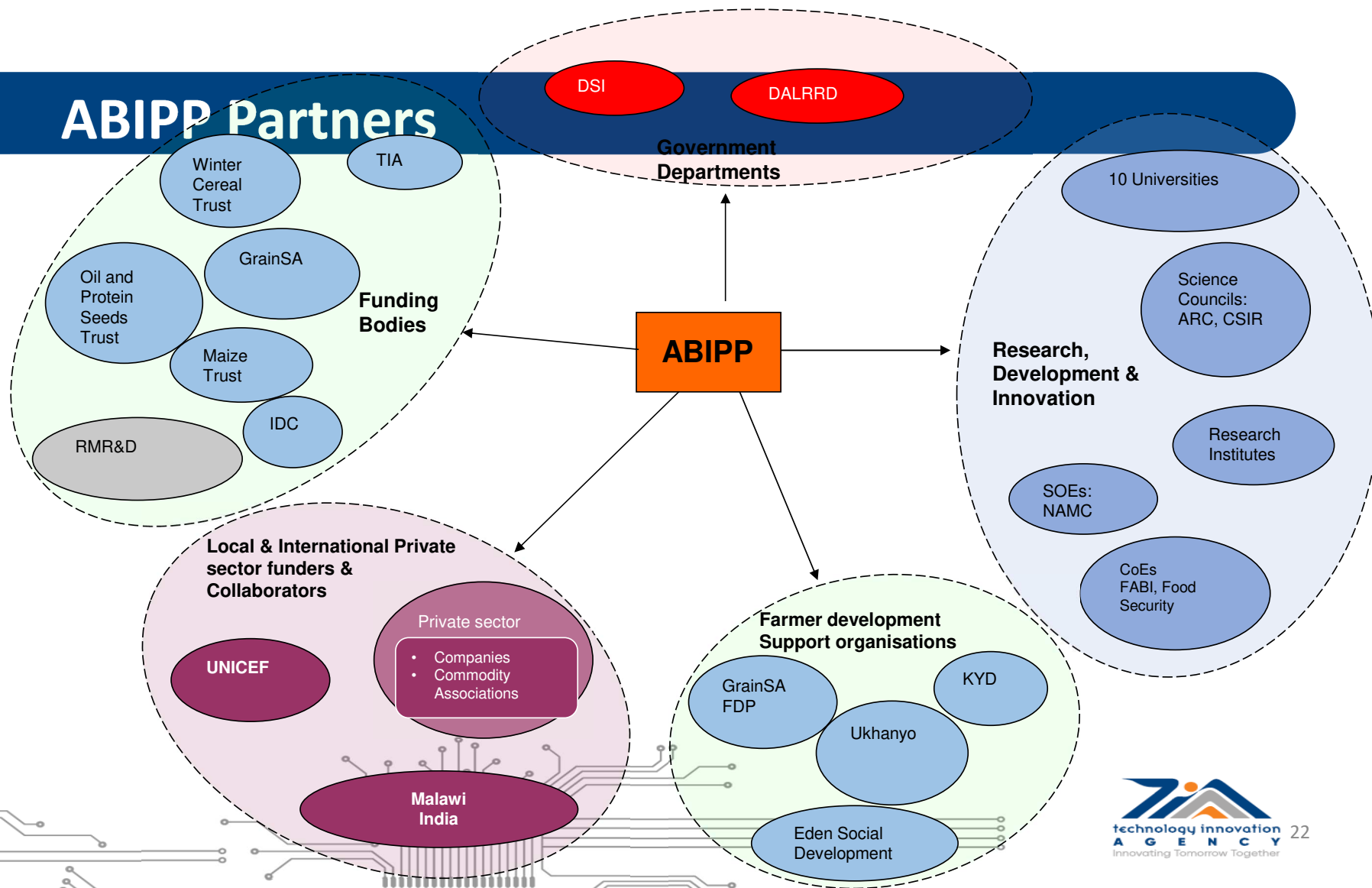
Food and Nutrition Security

- Soybean Food and Nutrition Programme
- Support for Farmer development support programme (jobs fund)
- Improve synergies and indicators across research chairs and centre of excellence For food and nutrition security in communities
- Support for FNSSA – EU-Africa M&E Indicators.

Agricultural Sector R&D Roadmap

Biosafety

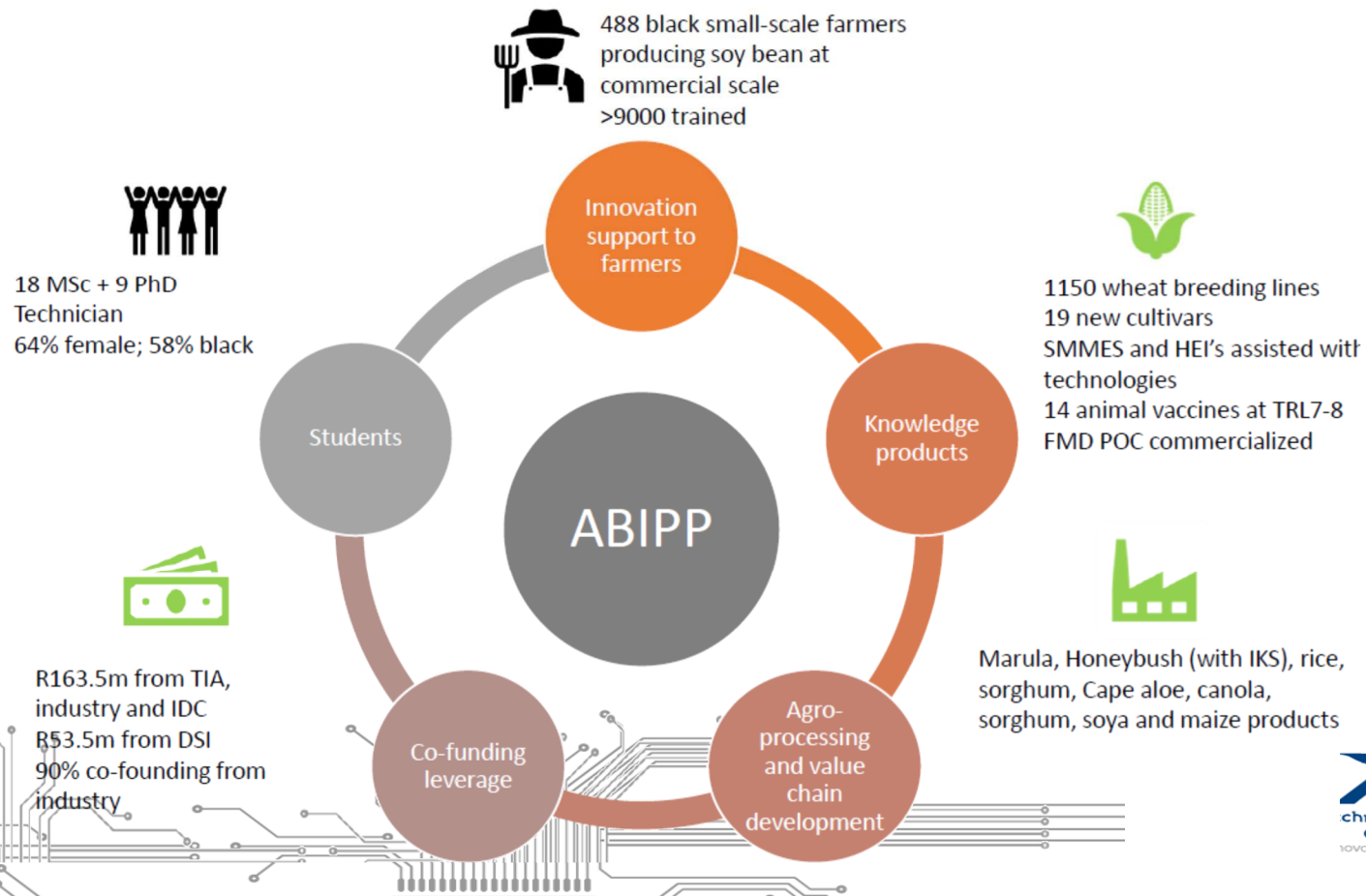
ABIPP Partners



Investment highlights

Investment/Investee	Highlight
Future Fynbos (Pty) Ltd	11x PBRs registered in RSA and EU
TokaBio (Pty) Ltd	<ul style="list-style-type: none"> • Raised R 2million in follow-on funding • Secured SAHPRA approval for COVID-19 diagnostic technology • Development of mobile COVID-19 diagnostic laboratory
AgriProtein (Pty) Ltd	<p>Attracted an additional US\$105 million in December 2018</p> <p>Raised R 6.2 million from Saudi Arabia</p>
Mabu Substrates	Secured R 5 million follow-on funding from IDC
Xsit (Pty) Ltd)	<p>TIA equity stake was sold, R1.429 million invested</p> <p>R5m loan repayment in 2017</p>
BCP	Portfolio bought by BASF for R 1 billion
CitroGold/BioGold	TIA equity stable sold, R 9,1 million invested
AgriViro (Pty) Ltd	Development of 16x biopesticide prototypes
UCT-Recombinant vaccine	Development of 6x BEF & LSD dual vaccines prototype

ABIPP Highlights



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Thank you
