TECHNOLOGY INNOVATION AGENCY

NATURAL RESOURCES

science, technology & innovation
Department:
Science, Technology and Innovation
REPUBLIC OF SOUTH AFRICA

technology innovation AGENCY
Innovating Tomorrow Together

ABOUT TIA

The Technology Innovation Agency (TIA) is an entity of the Department of Science and Innovation (DSI). TIA promotes the development and exploitation of discoveries, inventions and innovations to improve the quality of life for all South Africans by bridging the innovation chasm between research and commercialisation. In bridging the innovation chasm, TIA is an active funder, connector, facilitator and enabler. Partnerships and collaborations are vital to TIA effectively fulfilling this role. TIA serves as the key national institutional intervention to facilitate the translation of South Africa's knowledge resources emanating from Higher Education Institutions (HEIs), Science Councils (SCs), other public entities, and the private sector into sustainable socio-economic opportunities.

Activities that lead to the creation of innovative businesses are centred around making direct investments or providing funding for companies in selected sectors or industries, whilst also investing in the wider support 'ecosystem' for innovative businesses such as investments in incubators or accelerators.

VISION

To be a world class leading innovation agency that supports and stimulates technology innovation to improve the quality of life for all South Africans.

MISSION

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

TIA VALUES

Our values are; Teamwork, Professionalism, Excellence, Integrity, Transparency, Innovation.

POSITIONING

TIA supports the realisation of the mandate by enabling the progression of ideas across the innovation value chain through:

- Providing risk funding to enable the exploitation of technological innovation
- Supporting the commercialisation of industry enhancing technologies
- Providing access to infrastructure, enabling innovators to develop new technologies
- Promoting innovation skills development initiatives between academic institutions and industry
- Enacting innovation related programmes targeting specific groupings to provide access to specialised equipment, technical experts, and workspace support.

ROLE OF TIA

In bridging the innovation chasm, TIA is an active funder, connector, facilitator and enabler.

ACTIVE FUNDER

Providing risk funding and support for innovators to progress ideas towards market entry and commercialisation

01

CONNECTOR

Catalyse partnerships between SMMEs, industries, universities and science councils to develop an enabled environment supporting sector-specific innovations for global competitiveness

02

FACILITATOR

Attract and facilitate late-stage funding for the commercialisation of market ready technologies

03

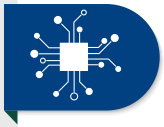
ENABLER

To reduce barriers of access to expensive high-end skills and equipment for innovators by repositioning Technology Stations and Platforms.

04

SECTORS WE FUND

TIA enables and supports technology innovation across all sectors of the economy to deliver socio-economic benefits for South Africa and to enhance its global competitiveness.



Advanced Manufacturing

Supports the development of a knowledge economy in manufacturing by accelerating both the manufacturing capability and the knowledge intensity of the industry, and to increase and sustain competitiveness and innovation in South Africa's manufacturing industry.

Agriculture

Supports technologies with potential for commercialisation and that contribute towards competitive, sustainable and inclusive agriculture and agri-business value chains. This includes improving the diffusion of appropriate agricultural technologies to small-scale and emerging farmers.

Energy

Supports the development of an innovative, competitive and sustainable energy industry and South Africa's transition to a low carbon economy, contributing to the energy security of supply and the creation of emerging industries.

Health

Supports innovations to enhance South Africa's global competitiveness in the health arena and to deliver socio-economic value through technological innovation in healthcare products and services, addressing the diagnosis, prevention and treatment of priority disease areas in South Africa.

Information Communication Technology

Supports South African innovators in applying their skills to create new ICT services and products that present high potential of establishing sustainable social or commercial enterprises.

Natural Resources

Supports innovations to improve the competitiveness of mining, minerals, water resources, environmental and waste management sectors and to foster the development of new cutting-edge and knowledge intensive technologies.

Indigenous Knowledge Systems

Supports innovations to harness indigenous knowledge and ideas with a focus on African traditional medicines, IK-based cosmeceuticals, nutraceuticals, and health infusions to serve as a source for technology transfer and commercialisation opportunities.

Industrial Biotech

Supports innovations to make impact in sectors such as the chemicals sector and various bioprocessing industries to produce high-value products with commercial application in various sectors including cosmetics, mining, as well as crop and animal health

NATURAL RESOURCES

The Natural Resources Unit supports technologies to sustainably improve process efficiencies in the extraction and exploitation of natural resources (mining) the unit also support reduce worker exposure to hazards. As mining is a priority thematic area in the DSI Decadal plan, TIA as an implementing agent, prioritises innovations that will enhance the economic competitiveness of the South African mining sector.

Purpose and Objectives

The Natural Resources business unit strategic focus areas are water resources management, waste management (circular economy, environment), climate change, mining and minerals processing. The Natural Resources business unit focuses on ensuring water security by using advanced technologies to sustainably improve efficiencies in solving the water crisis, supporting the development of technologies that minimise impact on the environment from waste. TIA supports technologies in the circular economy and the net-zero initiatives to sustainably improve process efficiencies in the extraction and exploitation of natural resources (mining) the unit also support reduce worker exposure to hazards.

FOCUS AREAS



Mining

TIA supports innovations and technologies to a grow South Africa's mining industry focusing on:

- Automation & digitisation
- Mining beneficiation
- Sustainable process technologies
- Health & Safety
- Environmentally responsible technologies

Water

- Prevention of water leaks
- Acid mine drainage
- Digitisation of water processing
- Infrastructure support for water reticulation
- Nanotechnologies in water

Circular economy

- Developing new technologies
- Reduction of waste
- Improved reuse of materials
- Reduction of landfill sites
- Addressing plastic waste
- Net Zero

HIGHLIGHTS - MINING INNOVATIONS

Blue Cube

Blue Cube Systems (BCS) is a technology company that designs, manufactures, distributes and supports in-line mineral quantification instrumentation. The Blue Cube MQi technology is based on reflective spectroscopy for slurry and dry applications and absorption spectroscopy for solutions. Revenues generated from the technology developed with TIA funding have allowed expansion of product range to include state-of-the-art instrumentation for the online measurement of mineral grades in froth flotation concentrator plants. The Company has expanded into numerous countries.

Stone Three

Stone Three Digital an industrial IoT company, developed a real-time Process Advisory Dashboard using non-contact sensors, advanced analytics, big data and deep process knowledge for the minerals processing, sugar and pharmaceutical industries. Advanced diagnostics have been developed for the mining industry. The ground-breaking technology has been taken up by mining giants such as Anglo-American and obtained international partnerships with global giants such as Microsoft, FLSmidth, ABB, Bluecube Systems and General Electric Wabtec.

Trailblazer

Trailblazer Technologies (Pty) Ltd has developed the KNeW™ Technology for treating industrial effluent and acid mine drainage. The KNeW™ technology has been tested on tanker loads of mine water from various mining company operations. The Company has gained commercialisation traction with various agreements in South Africa and the USA.

HIGHLIGHTS -WATER INNOVATIONS

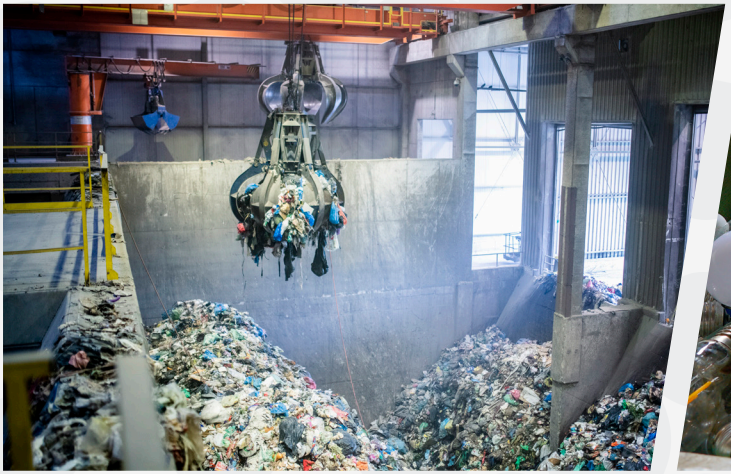
Municipal Operations App

The Municipal Operations App for Water Management is a technology solution providing municipalities a fully integrated operational tool to enable the detection of water leaks. The App based system allows for measurement and recording of bulk meters, fault identification, repairs, verification, and customer satisfaction measurement. The system also allows for automatic management reporting using dashboards and mapping including the display of hot spots. The technologies are employed in various Municipalities including eThekwini and City of Johannesburg.

Vulamanzi

The VulAmanz Water Purification Microfilter (VM) - A Green Engineering Technology Platform for Decentralised Water Treatment and Reuse. The innovation demonstrates three VM applications: the rural water filter, the pool waste-water treatment filter and the pre-treatment filter in varying environmental conditions. The technologies have been deployed at various Municipalities.

HIGHLIGHTS: CIRCULAR ECONOMY



E-waste shredder

Partnership between TIA and the Vaal University of Technology to develop portable shredders dedicated to destroying electronic data storage devices onsite. The aim is to develop a solution to address the lack of data protection that exists at E-Waste and data storage facilities.

eWaste Africa-LPX Plant

Funded by TIA to develop a hydrometallurgical plant to treat luminophorous powder from fluorescent light bulbs fort the removal of mercury and recovery of rare earth metals. The innovation offers an environmentally friendly, cost effective solution leading to zero hazardous waste to landfill

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