ANNUAL PERFORMANCE PLAN | 2025/26

science, technology & innovation

Department:
Science, Technology and Innovation
REPUBLIC OF SOUTH AFRICA

technology innovation AGENCY
Innovating Tomorrow Together

30 YEARS OF FREEDOM

Contents

List of abbreviations and acronyms

AI	Artificial intelligence
APP	Annual Performance Plan
B-BBEE	Broad-Based Black Economic Empowerment
bn	Billion
BRICS	Brazil, Russia, India, China and South Africa
COVID-19	Coronavirus Disease 2019
DDM	District Development Model
DSTI	Department of Science, Technology and Innovation
GDP	Gross Domestic Product
GERD	Gross Expenditure on Research and Development
HIV/AIDS	Human Immunodeficiency Virus Infection and Acquired Immune Deficiency Syndrome
ICT	Information and communication technologies
IK	Indigenous knowledge
IKS	Indigenous knowledge systems
IoT	Internet of Things
IP	Intellectual property
m	Million
MTDP	Medium-Term Development Plan
MTEF	Medium-Term Expenditure Framework
MTSF	Medium-Term Strategic Framework
NDP	National Development Plan
NSI	National System of Innovation
PFMA	Public Finance Management Act
R&D	Research and development
RDI	Research, development and innovation
SBRI	Small Business Research and Innovation Programme
SDG	Sustainable Development Goal
SET	Science, engineering and technology
SIP	Strategic Innovation Programme
SMME	Small, Medium and Micro Enterprise
SPV	Special Purpose Vehicle
STEM	Science, technology, engineering and mathematics
STI	Science, technology and innovation
TIA	Technology Innovation Agency
TVET	Technical and Vocational Education and Training
UNCTAD	United Nations Conference on Trade and Development

Executive Authority statement

The Annual Performance Plan (APP) 2025/26 of the Technology Innovation Agency (TIA) identifies the outputs, output indicators, and targets that the Agency aims to achieve in the 2025/26 financial year. TIA's APP 2025/26 is informed by the National Development Plan (NDP) 2030, the draft Medium-Term Development Plan (MTDP) 2025-2030, the Economic Reconstruction and Recovery Plan, and the District Development Model (DDM). It also considers relevant National System of Innovation (NSI) policies, specifically the White Paper on Science, Technology and Innovation, and the Science, Technology and Innovation Decadal Plan 2020. The APP 2024/25 considers the Sustainable Development Goals (SDGs) of the United Nations' Agenda 2030 and the African Union's Agenda 2063. The APP 2025/26 is aligned with TIA's Strategic Plan for 2025-2030 in addition to the Agency's mandate, as per the Technology Innovation Agency Act (No 26 of 2008). It will be implemented with the oversight of TIA's Accounting Authority, the Board. Implementation of the APP 2025/26 will be monitored through quarterly and annual performance reporting to TIA's shareholder, the Department of Science, Technology and Innovation (DSTI).

Prof. BE Nzimande, MP
Minister of Science, Technology and Innovation

Chairperson's foreword

I am pleased to present the APP of the TIA for the 2025/26 financial year. This represents an implementation plan for the first year of the Strategic Plan 2025-2030 and the first year of the TIA 2.0 Corporate Strategy approved by the Board.

The APP embeds the Corporate Strategy, placing emphasis on the Consolidate phase of the TIA 2.0 roadmap. This entails an exercise in organisational renewal, building on the successes of existing funding instruments and programmes, whilst engaging with our stakeholders in promoting a shared vision for strengthening the innovation ecosystem. All of these efforts will include a reconfiguration of the organisation, positioning it to assume its rightful role as a curator of the innovation ecosystem.

TIA's Strategic Plan 2025-2030 defines three outcomes against which the organisation will pursue the three priorities of the MTDP through its mandate. These are:

- intensified commercialised innovations in support of inclusive economic growth, sustainable development and transformation;
- an enabled innovation ecosystem; and
- a more responsible and capable TIA supporting a capable state.

The APP 2025/26, therefore, is a detailed articulation of how TIA plans to deliver against the Strategic Plan and in this, the organisation has set ambitious targets that aim to enhance its performance and its impact in the NSI. These are inspired by the five-year key strategic priorities that the Board has defined for a TIA that functions at an optimal level. These are:

- Institutional capability: In this first year of the strategic cycle, the Board's priority is to strengthen TIA's institutional capabilities that are necessary for the organisation to perform and produce higher levels of impact in the NSI. Key among these are measures to improve operational efficiencies, bolstering human resource capacities by filling key executive leadership positions, recruiting capable staff and strengthening governance systems.
- Enhanced innovation curation: The organisation will build on its existing funding instruments and other programmatic interventions, while placing greater emphasis on and dedicating focused efforts to building relationships with other funders in the innovation ecosystem. This seeks to promote funding efficiencies and ensure seamless progression of investment opportunities through the innovation value chain in the NSI, contributing to the ambition of an ecosystem functioning at maximum efficiency.
- Enhancing commercialisation: Commercialisation of intellectual property (IP) emanating from publicly-funded research remains intractable, yet an area that holds great potential to elevate South Africa's competitiveness and economic growth. TIA will build on insights from its previous experiences to support the strengthening of the technology transfer system, linkages with the Small, Medium and Micro (SMME) sector and industry to increase the rate of commercialisation of publicly-funded IP.
- Promoting collaboration: TIA will play an increased role in leading efforts to promote collaborative multi-stakeholder initiatives that will enhance the execution of high-impact catalytic innovation programmes. This approach aims to promote the pooling of resources, knowledge, expertise, and infrastructure capabilities and funding from all segments of society, including government, the private sector, the research community and civil society. In this way, South Africa will be well positioned to harness the opportunities presented by the digital economy and the green revolution, responding to climate change and promoting economic competitiveness.

- Positioning South Africa as a destination for innovation: As with similar agencies around the world, TIA will work with the DSTI and other partners in the ecosystem to champion and launch a high level annual South African Innovation Week as a comprehensive event to showcase start-ups, research capabilities within universities and science councils, research and innovation infrastructure, and a wide range of innovations produced from government investments and the private sector. As such, this will represent a showcase of South Africa's aggregated innovation effort and promote the country as a destination of choice to partners and investors.

Underpinning these are core principles of transformation and inclusivity, which require that TIA promotes the participation of previously disadvantaged communities, including youth, women and persons with disabilities in innovation, and marginalised segments of society in rural and township communities. This will ensure that economic growth in the country occurs on account of contributions by all citizens, and that they share equitably in the dividends through positive socio-economic and environmental outcomes.

The key performance indicators in this APP, therefore, are all framed to mark the start of a new era for the organisation and its contribution in the NSI. The Board remains fully committed to ensuring that TIA delivers to society that which is expected of an innovation agency comparable to others around the world that have successfully transformed their economies through similar mandates.

I would like to thank the Minister of Science, Technology and Innovation, Honourable Professor Bonginkosi Nzimande, and the senior leadership team at the Department for their input and guidance in putting together this APP. I would also like to thank my colleagues on the TIA Board, management and staff for their positive contributions in the development of the document.

Mr Loyiso Tyira
Chairperson of the Board
Technology Innovation Agency

Chief Executive Officer's overview

TIA's 2025/26 APP represents the first implementation year of the Agency's 2025-2030 Strategic Plan. In the past strategic period, TIA performed well against its set objectives with a sharp focus on commercialising a wide range of technologies that address challenges across various sectors of the economy. In line with its core mandate, the organisation has seen more than 260 technologies introduced into the market and several enterprises established.

An analysis of TIA's performance in the previous strategic cycle shows that TIA achieved its outcome targets with regard to technologies commercialised, biobased technologies demonstrated and bio-based entrepreneurs and organisations accessing high-end science, engineering and technology (SET) services. Two key areas were a challenge during this period these relate to the number of SMMEs receiving support and transformation targets relating to women, youth and persons with disabilities. As TIA moves into a new strategic cycle to improve performance around transformation related targets, the Agency has secured Board approval to establish three stand-alone programmes to advance transformation and inclusivity. These programmes intend increasing the participation of youth, women and persons with disabilities in innovation.

As we enter the 7th Administration, there has been much reflection on how to increase society's dividend from government's many years of investments in science, technology and innovation (STI). The 2025-2030 Strategic Plan has been developed with much reflection on the recommendations made in the numerous reviews undergone by the organisation; the last review being the Ministerial Supplementary Review, which was published in 2022. The upcoming year will be critical for putting into motion many of the commitments put forward by the Agency in its strategic plan. TIA will intensify efforts to establish partnerships that will enable it to transition from being only a funder to also functioning as a fund manager and investor that focuses on large scale innovation programmes in sectors that hold potential to contribute to South Africa's socio-economic challenges. In addition to this, TIA will launch the Small Business Research and Innovation Programme (SBRI) to stimulate and fund innovations aimed at addressing service delivery challenges in the country.

An additional focus for the upcoming year will be on institutional building and repositioning. Indeed, successful execution of the TIA 2.0 Corporate Strategy hinges on a properly capacitated organisation that possesses adequate institutional capabilities to play an effective curatorship and leadership role in the NSI. Organisational structure optimisation is one of the key interventions for this process, underpinned by scaled-up operational capabilities where business processes are optimised, and digital transformation and automation is accelerated and strengthened as a modality for doing business more effectively and efficiently.

Positioning South Africa as a destination for innovation will also be a focus area for the upcoming year. South Africa's investment in STI needs to be aggregated in a manner that will showcase the

country as an investment destination for international funders. The TIA will accordingly plan and launch an annual South African Innovation Week as the apex event in the country to showcase start-ups and the research capabilities at our universities and science councils, our research and innovation infrastructure and a wide range of innovations produced as a result of government investments and the private sector.

Another critical area of intervention will be institutionalising the Decadal Plan. Translating the Decadal Plan priorities into action has involved an approach of embedding these in the organisation's structure in a way that will maximise effective implementation. Each of the key priorities in the Decadal Plan will be realised through the full deployment of the elements of TIA's new business model, but also through its Thematic Impact Areas, which seek to optimise both internal and external cooperation and collaboration.

The organisation is looking forward to the year ahead and to doing the necessary groundwork critical for achieving important milestones of the TIA 2.0 Corporate Strategy.

Mr Patrick Krappie
Acting Chief Executive Officer
Technology Innovation Agency

Chief Financial Officer's overview

The TIA's Strategic Plan and APP, as a point of departure, have been developed taking into account the priority areas of the 7th administration as embodied in the MTDP.

With 2025/26 being the first year of implementing the 2025–2030 Strategic Plan, the TIA's 2025/26 APP has been designed to respond to the national economic challenges and appropriate responses and direction as set in the Decadal Plan.

The annual plan has been devised on the basis of the new TIA 2.0 Corporate Strategy, which embraces three business models, including a direct funding approach, Strategic Innovation Programmes (SIP) and a Fund-of-Funds approach. The plan emphasises efforts to enhance the delivery of the mandate aligned with the thematic areas in the Decadel Plan with a focus on the commercialisation of technologies that concern the health of our people, food security, the enhancement of our biological resource exploitation, and increasing investments in technologies that contribute to economic revival and the re-industrialisation of the South African economy.

The plans also focus on measures to support the SMME sector and to increase the participation of marginalised segments of society, such as people in townships, rural communities, women, youths and persons with disabilities. With the TIA having adopted the Broad-Based Black Economic Empowerment (B-BBEE) policy, more effort will be directed towards the empowerment of previously disadvantaged individuals through deliberate investment decisions, stakeholder engagements and general mobilisation initiatives.

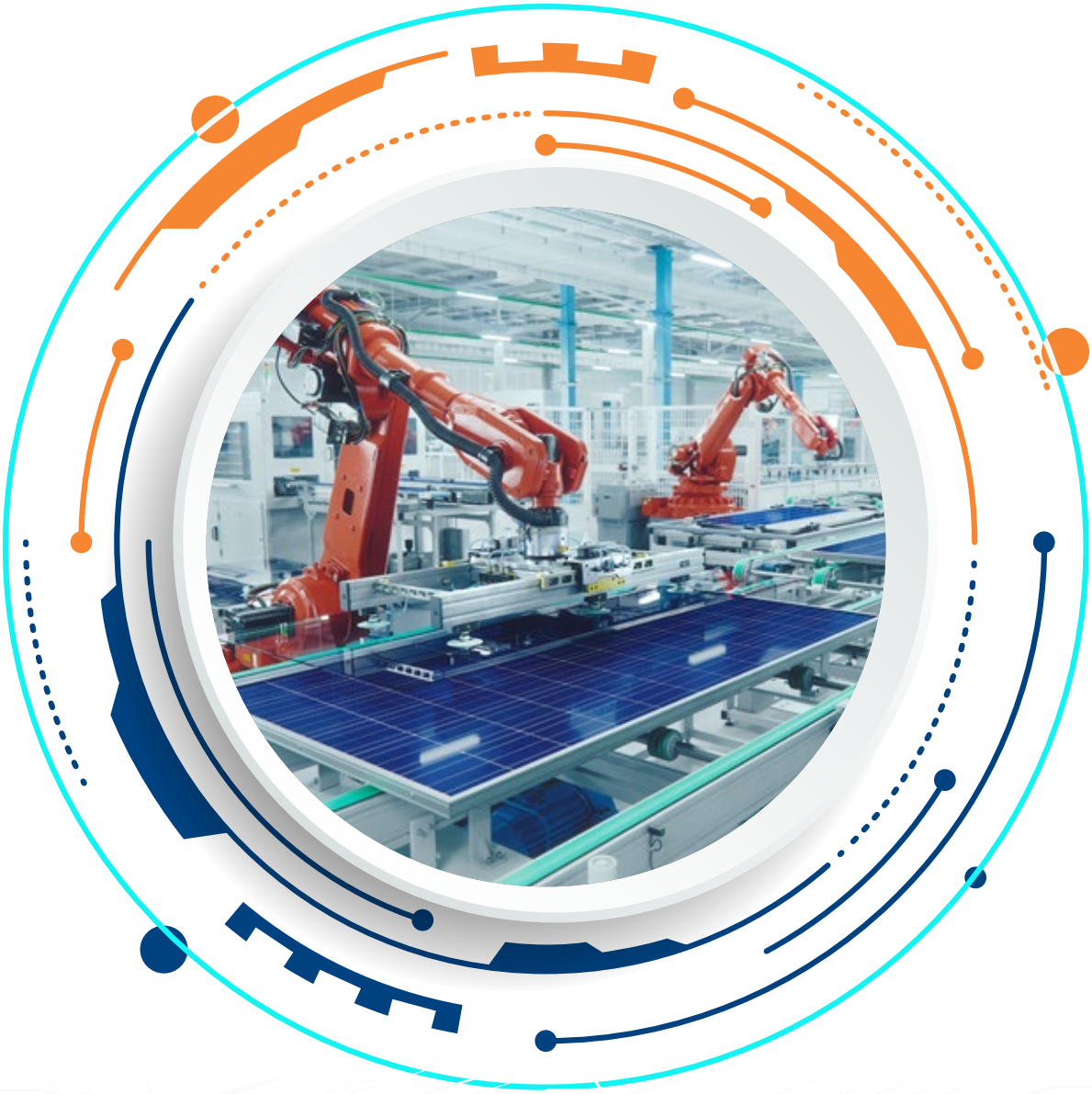
The TIA operates with an annual budget of approximately R470 million. This is made up of a baseline of R184 million and R285 million, of which is assigned ring-fenced funding for 2025/26. The budget estimates for 2025/26 are well placed, based on the performance of the past strategic planning cycle. The Agency's planning cycle has prioritised effective cost-management solutions and continues to ensure that funds are appropriated in areas in which they are most needed. Baseline allocations for the Medium-Term Expenditure Framework (MTEF) period has reflected marginal increases, which, however, remains insufficient to fulfil the funding needs. Accordingly, there remains a large unfunded pipeline of investments, placing great emphasis on the Agency's having to leverage additional funding by means of various partnership models.

In this environment, the Agency is challenged to intensify its efforts to build partnerships that will bolster the execution of its mandate through co-funding initiatives, the exploitation of resources and other forms of expertise and capabilities across the NSI. This will enable the TIA to continue playing an important role in promoting collaboration and co-ordination with other players in the NSI, in both the government and the private sectors.

In line with its zero-based budgeting methodology, the Agency's budget is aligned to its strategic goals. All the components of the annual budget are relevant and cost-effective, based on the reviews of previous years. The Agency maintains its drive towards improved savings. In addition, it will explore additional income sources to ensure its sustainability and reduce its reliance on funding from the fiscus.

By implementing robust financial management, planning and control, the Agency strives to ensure that 90% of the funding received is directed towards investment-related spending. This stringent target ensures that costs are maintained at the lowest possible level and that all financial efficiencies are maximised.

Mr Ismail Abdoola
Chief Financial Officer
Technology Innovation Agency



Official sign-off

It is hereby certified that this APP

- was developed by the management of TIA under the guidance of the TIA Board and the DSTI;
- considers all the relevant policies, legislation, and other mandates for which the TIA is responsible; and
- accurately reflects the impact, outcome, and outputs that the TIA will strive to achieve during 2025/26.

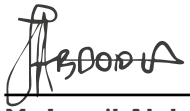
Mr Dayanandan Naidoo
Acting Executive: Commercialisation

Mr Mohohlo Molatudi
Acting Executive: Bio-economy

Mr Vusi Skosana
Acting Executive: Innovation Enabling

Mr Garth Williams
Head: Strategic Planning and Reporting

Ms Corlette Mamabolo
Acting Executive: Corporate Services



Mr Ismail Abdoola
Chief Financial Officer

Mr Patrick Krappie
Acting Chief Executive Officer

Mr Loyiso Tyira
Chairperson of the Board

Prof. BE Nzimande, MP
Minister of Science, Technology and Innovation

PART A

MANDATE

7. Legislative mandate

The TIA was established as a schedule 3A public entity under the provisions of the Public Finance Management Act (PFMA) (Act 1 of 1999, as amended by Act 29 of 1999). Its mandate is derived from the provisions of the Technology Innovation Agency Act (26 of 2008),[1] which establishes the TIA as an agency that promotes the development and exploitation, in the public interest, of discoveries, inventions, innovations and improvements. The TIA's objective is to support the state in stimulating and intensifying technological innovation with a view to improving economic growth and the quality of life of all South Africans by developing and exploiting technological innovations. The Agency's strategic programmes are aligned with the national, continental, and global imperatives.

The Science and Technology Laws Amendment Act (9 of 2020) came into effect on 1 April 2021. Several amendments were made to the TIA Act (26 of 2008). A key change was that the Agency may perform any function in any territory beyond South Africa's borders. This change empowers the Agency to pursue international partnership opportunities more intentionally to achieve its objectives in fulfilment of its mandate.

[1] *As amended by the Science and Technology Laws Amendment Act (No 7 of 2014) and the Science and Technology Laws Amendment Act (No 9 of 2020).*

PART B

STRATEGIC FOCUS

Vision

To be a dynamic, intelligence-driven national innovation agency that champions transformative, high-impact innovations

Mission

To nurture an ecosystem that cultivates innovation, accelerates the development of groundbreaking solutions and facilitates collaboration towards inclusive and sustainable growth and development

Values

At the TIA, a set of core values guide the organisational culture and inform how TIA engages all stakeholders, internally and externally. The core values are foundational to the culture and strategic direction of TIA 2.0.

TEAMWORK:
Together we can do more. Fostering teamwork creates a TIA work culture that values collaboration and co-operation.

PROFESSIONALISM:
We apply the most appropriate skills, competencies, experience and knowledge of best practices cohesively in conducting our work.

TRANSPARENCY:
We engage in inclusive open communication, and hold each other accountable for our performance and conduct. Integrity plays a key role in transparency, as it ensures that the information provided is accurate, truthful, and free from deception or manipulation.

INNOVATION:
We foster a culture in which we continually nurture and implement new ideas from our staff and stakeholders that enhance the way we do things and deliver services.

ACCOUNTABILITY:
We take personal accountability for our actions and results. We focus on finding solutions and achieving results. When we report, it is not only for compliance purposes; we give meaningful and accurate information to all stakeholders

CUSTOMER-CENTREDNESS:
We create a positive stakeholder experience by maximising service and building relationships. We strive to understand our stakeholder and build products and services around their needs.

RESPECT:
We treat all individuals with fairness, dignity, and consideration in the workplace, regardless of their role or background. At the TIA we believe that respect fosters a culture of inclusivity, collaboration, and mutual understanding, leading to a positive work environment and enhanced team dynamics.

TIA's role in the innovation ecosystem

The TIA was established to promote the development and use – in the public interest – of discoveries, inventions, innovations, and improvements. The objective of the Agency is to support the state in stimulating and intensifying technological innovation to improve economic growth and the quality of life for all South Africans.

The Agency plays a critical role in supporting the realisation of the government's vision through funding and de-risking technological innovation and supporting the commercialisation of publicly funded IP, especially (but not limited to) bio-based technologies. The Agency also supports the process of knowledge use, the diffusion of existing technologies and grassroots innovators in vulnerable and marginalised communities, in this way contributing to the achievement of the Sustainable Development Goals (SDGs).

The TIA also provides SET and enterprise development support to SMMEs and co-operatives, particularly to those that are black-owned, black women-owned, youth-owned or located in underserved provinces. From a regional and international perspective, the TIA plays a key facilitation role through its collaboration with research and innovation institutions across the continent and beyond through joint technology development programmes and more.

The TIA remains committed to contributing to the realisation of the following four NDP outcomes:

- **Outcome 2:** A long and healthy life for all South Africans.
- **Outcome 4:** Decent employment through inclusive economic growth.
- **Outcome 5:** A skilled and capable workforce to support an inclusive growth path.
- **Outcome 10:** Protect and enhance our environmental assets and natural resources.

It is incumbent on the TIA to contribute to the realisation of the Decadal Plan by:

- revitalising and modernising key sectors of the economy through improving economic competitiveness and productivity – specifically, agriculture, manufacturing, and mining;
- leveraging off the circular economy and the digital economy as new sources of growth;
- promoting innovation in support of health, specifically by optimising health systems, improving the quality of healthcare and digitising healthcare systems; and
- supporting energy-sector innovation in support of decarbonising the economy.

The TIA seeks to pursue the following priorities through STI-focused interventions:

- Accelerating the rate of commercialisation of investments in the high-technology sectors that will help to build South Africa's economic competitiveness, and in this way supporting economic growth.
- Providing skills for the economy through SET and enterprise development support to SMMEs and co-operatives.
- Alleviating poverty, inequality, and unemployment by providing SET and enterprise development support to SMMEs.
- A capable, ethical and developmental organisation through the reconfiguration of the agency's strategy and operations towards more efficiency and impact.
- Promoting transformation and inclusion, focusing particularly on the historically disadvantaged and marginalised (women, youths and persons with disabilities) as a response to communities in distress.
- Support energy security and the Just Energy Transition agenda through active engagement in eMobility and hydrogen opportunities.
- Improving service delivery to citizens through investments in technologies such as information and communication technologies (ICT)-based solutions for education, health and other social services.
- Fostering a broader enabling innovation environment, including expanding the TIA's spatial footprint through technology and innovation support centres and Technology Stations.
- Stimulating bio-entrepreneurship through interventions which include providing access to expertise and high-end infrastructure.
- Supporting transformed recipients and investees in underserved provinces, and in so doing spreading the benefits of innovation more widely and directing developmental efforts to previously disadvantaged and underserved parts of the country.

8. TIA 2.0 Corporate Strategy

Until the end of the previous strategic cycle, the TIA primarily operated on a direct funding approach and as an innovation ecosystem enabler, structured around three key roles, namely, connector, funder and facilitator. Under the TIA 2.0 strategic roadmap, a revised business model will be introduced which seeks to introduce significant changes that will respond to the deepening national and global challenges of low growth, extreme poverty, high inequality, worsening unemployment, degrading natural ecosystems, worsening climate change and more. The new model was guided by several design principles.

1. **Alignment with Legislative Mandate:** The TIA is mandated to translate a greater proportion of publicly funded research into commercial technology products and services and to intensify technological innovation and enhanced commercialisation to improve economic growth and the quality of life for all South Africans.
2. **Alignment with the Decadal Plan:** The priorities and principles of the Decadal Plan need to be followed to ensure that the TIA supports the realisation of the Decadal Plan's intended outcomes.
3. **Alignment with Medium-Term Development Plan:** The TIA needs to respond to the MTDP's priorities of inclusive growth and job creation, reducing poverty and tackling the high cost of living, and ensuring a capable, ethical and developmental state.
4. **Account for TIA's Evolving Role:** The TIA's role is evolving as a curator and thought leader in the innovation ecosystem, focused on enhanced commercialisation.
5. **A Stakeholder-Centric Approach:** The TIA will focus on the needs of its shareholder, key stakeholders and primary beneficiaries, including researchers, start-ups, entrepreneurs, SMMEs and public-sector entities.
6. **Sustainability:** The Agency will become financially sustainable.
7. **Collaboration and Partnerships:** The TIA will foster strong partnerships and collaboration with institutions across the post-secondary education and training sector, industry, government and international organisations. It should grow and leverage these partnerships to enhance its resources, expertise and reach.
8. **Inclusivity and Equity:** The TIA will promote inclusivity and equity by providing support to under-represented groupings, namely women, youths, persons with disabilities and other marginalised communities.
9. **Measurement and Accountability:** The Agency will establish clear metrics and evaluation frameworks to measure the outputs, outcomes and impact of initiatives and should ensure efficiency, effectiveness, transparency and accountability in the allocation and use of its resources.
10. **Compliance and Risk Management:** The TIA will develop robust risk-management strategies to mitigate potential challenges and uncertainties.

TIA's new business model was built using the building blocks depicted in Figure 1.

Figure 1: Building blocks of TIA's new business model

The new business model describes how the TIA will create, deliver and capture mutual value in exchanges with its shareholder, partners, key stakeholders and clients. This business model retains the way in which the Agency operated in the past strategic cycle but augments this with several new features, positioning the Agency for greater impact and improved operating efficiency. The new model is depicted in Figure 2.

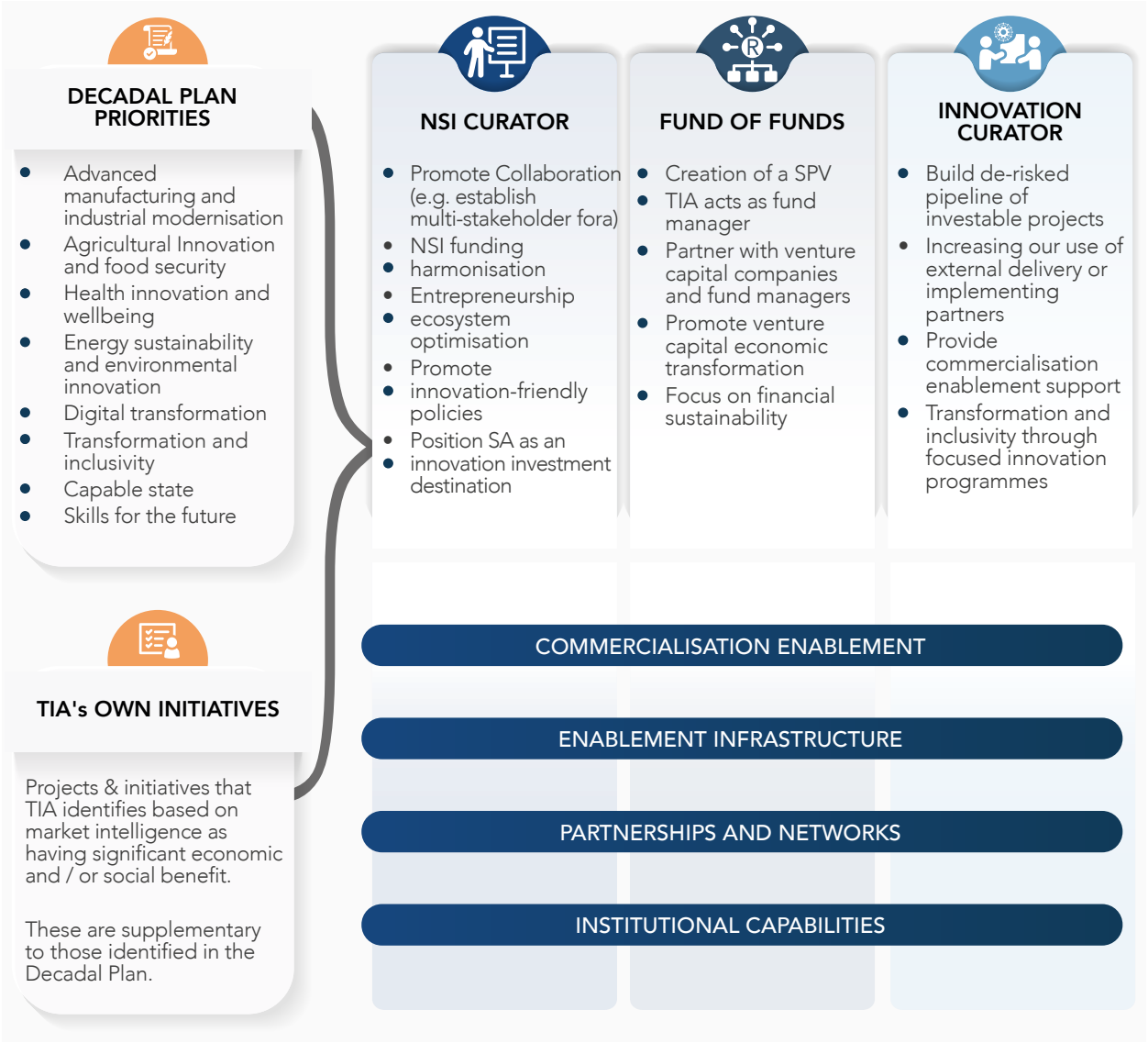


Figure 2: TIA's new business model, showing three modes of support together with several cross-cutting enablers

The Agency's new business model entails three pillars of providing financial support, namely, through Direct Funding, the establishment of a Fund-of-Funds and the implementation of SIPs.

The Direct Funding pillar represents the status quo as it is the historical way in which financial support has been provided by the TIA. It involves providing financial support to beneficiaries through various funding programmes, with or without an intermediary, using a range of financial instruments, including grants, conditional grants and loan instruments. The Direct Funding approach will continue to play an important role going forward as it is closely aligned with the Agency's historical value proposition of being the only national entity in the ecosystem willing and mandated to support early-stage high-risk opportunities.

The ecosystem sits with a rich portfolio of investable projects, nurtured over the years by different funding institutions such as the TIA, the Industrial Development Corporation and the Department of Trade, Industry and Competition instruments such as the Support Programme for Industrial Innovation and The Technology and Human Resources for Industry Programme. The key challenge is to accelerate these to market through the provision of substantial funds generally required for late-stage pre-commercial opportunities. Accordingly, the Agency will establish a Special Purpose Vehicle (SPV) aimed at crowding in private- and public-sector participation towards the commercialisation of projects. The SPV model will contribute to the financial sustainability of the Agency as well as furthering its de-risking mandate.

SIPs represent an approach by which the TIA will effect significant changes by investing in large-scale multi-year and multi-stakeholder collaborative innovation programmes which are sufficiently catalytic to change industries and build new ones, centred on South Africa's unique research and development (R&D) capabilities and competencies.

TIA's non-financial support enablers will focus on the following:

Enabling the innovation ecosystem

- Transformation programmes targeting youths, women, and persons with disabilities.
- Promotion of innovation and innovation management skills, commercialisation and entrepreneurship skills.
- Stimulating a culture of innovation and cultivating critical thinking skills to promote a vibrant ecosystem characterised by individuals with a strong belief in innovation and their ability to develop life-changing solutions.
- Maintain and expand access to high-end SET support for researchers, entrepreneurs and innovators.
- Provide business support services to ensure that innovators and entrepreneurs receive support to create start-ups and take their technologies to market.
- Build on the TIA's base of existing local and international partnerships to leverage resources, promote collaboration and creating positive framework conditions for innovators and entrepreneurs to thrive.
- Leverage the existing strong network of innovation actors, ecosystem builders and other role-players to promote a culture of learning, entrepreneurship and innovation.

Commercialisation enablement

The TIA will continue to provide mentoring, business support services and advisory services as part of its commercialisation enablement role. These are designed to help innovators and entrepreneurs overcome challenges, accelerate their growth and bring their innovations successfully to market.

Enablement and Venture/Industry Builder

The TIA will play an effective interventionist role as Industry Builder, which will involve supporting and nurturing industries or sectors, particularly in areas where market forces alone are insufficient to drive growth. Its role as Venture/Industry Builder will be particularly important as it scales up the organisation and implements the SIPs.

9. Updated situational analysis

In developing the 2025/26 APP, the TIA Board and management undertook a review of the external and internal environment to assess the factors that are likely to influence the organisation's ability to deliver on its strategy during this period.

This is the first APP of the five-year planning cycle. This period is marked by a new strategic plan which derives its priorities from the MTDP and is focused on the reconfiguration of the TIA as a more efficient and impactful organisation. This process has come about because of the Ministerial Supplementary Review, the report of which was published in 2022. The Agency has been subject to numerous reviews in the past, but this latest review has recommended substantial changes in the way the Agency operates. In response to this review, the Agency has embarked on the TIA 2.0 roadmap which is encapsulated in the TIA 2.0 Corporate Strategy. As part of this endeavour, the Agency is seeking to retain its current value proposition and will also build its thought leadership and Innovation Curator brand and use this to be a system optimiser while adding value to the NSI broadly and our stakeholder and beneficiaries.

An important development initiated in the previous financial year, which has negatively affected the organisation's operations and the impact it seeks to make on the NSI, is the cost-containment measures and budget cuts announced by the National Treasury. These cost-containment measures have continued into the 2025/26 financial year and are likely to continue until a significant economic turnaround occurs. The budget cuts are due to a deteriorating fiscal situation, with economic growth having been suppressed and less than optimal, prompting the budget cuts.

Despite the current challenging situation, the TIA remains optimistic and focused on achieving its set targets for 2025/26. These challenges present the organisation with an opportunity to find solutions to pressing matters and accelerate measures for accessing funding from other sources that share similar objectives. Accessing these funds will be a way to drive projects that are of strategic importance to the organisation.

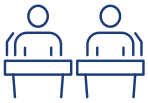
An analysis of TIA's strengths, weaknesses, opportunities and threads is presented in Table 1.

Table 1: TIA strengths, weaknesses, opportunities and threats analysis

STRENGTHS	• The uniqueness and extent of TIA's mandate positions it as a relevant institutional intervention in the NSI • Solid foundation with key instruments such as the Seed Fund Programme, Technology Stations Programme and Technology Platforms Programme (unique innovation funding instruments) • Track record of funding innovations • Active funder involved in the post-investment process • Deep expertise in SET capabilities • Uniqueness of TIA's mandate – de-risking • Good baselines for sound strategic partnerships
OPPORTUNITIES	• Strong network of partners that we can rely on and leverage • Opportunity to emulate the success of partnerships in Bioeconomy across TIA • Scaling up and implementation of programmes that promote transformation • Supporting service delivery through locally developed innovations • Deepening collaboration with the growing venture capital sector and other institutional investors • Existence of a strong network of partners with deep expertise for increased execution of the TIA mandate • Prospects for use, adoption and deployment of technologies for digital transformation to drive societal change • Possibilities offered by the green revolution in response to climate change • Reposition TIA as a capable and responsive institution geared for higher impact
WEAKNESSES	• Suboptimal organisational structure for implementation of TIA 2.0 strategy • Weak positioning with stakeholders • Silos in the way of working (internal fragmentation) • Lack of cross-functional teams • Under-capacitated structure • Weak branding and marketing • Inadequate compliance with policies and procedures • Inadequate funding to respond to increased demand and dynamism of ecosystem
THREATS	• Mandate creep leading to duplication of resources • Poor knowledge management and loss of organisational knowledge • Competition for skills resulting from a rapidly expanding ecosystem • Increasingly diminishing fiscus • Poor appreciation of the potential for innovation to resolve social, economic and environmental issues across government

An analysis of the external environment in which the TIA operates is presented in Table 2.

Table 2: PESTEL analysis

Dimension	Opportunity/risk
Political 	• Uncertainty about Ministerial Review implementation • Relationship with the shareholder • Parties in the Government of National Unity are united in support of the need for STI to make an impact • Potential to overcome the co-ordination or fragmentation challenges of the NSI through greater cooperation with other government departments and the private sector and by implementing collaborative initiatives • Potential for closer co-operation with the departments in the Economic Sectors, Investment, Employment and Infrastructure Development Cluster, especially the DHET • Poor appreciation of the potential for innovation to resolve social, economic and environmental issues across government • Establishment of the Government of National Unity with some market-friendly signalling, but risk of continued policy incoherence. Energy policy is a case in point
Economic 	• Declining gross domestic product (GDP) with load-shedding contributing to the decline • Budget shrinking but demand for funding from clients increasing affects the way we can serve our mandate as th TIA • Food price inflation increasing higher than general inflation • Increase in fuel prices means an increase in the cost of doing business for the TIA • De-dollarisation • Hike in interest rates • Geo-politics • Potential for economic recovery in the post-COVID-19, post-local-elections period
Social 	• Increasing poverty • Poor-quality education • High crime rate • Widening inequality • Growing population • Increased disease burden • High unemployment, especially among black people, youths and women • Likelihood of civil unrest, particularly at universities, during the annual #FeesMustFall campaign • Poor service delivery, particularly at the local municipal level • Imperative to harness innovation to promote transformation and inclusion
Technological 	• Increased digitalisation of the economy • Declining expenditure on experimental development • Declining gross expenditure on research and development (GERD) and business expenditure on R&D in real (inflation-adjusted) and nominal terms • Declining inventiveness as reflected by patents • Low proportion of local inventors compared with other nations • Rapid technological change and associated disruption of the economy and society • South Africa's research enterprise is well balanced, with pockets of world-class science and technology capabilities (e.g., health) • The NSI's response to the COVID-19 pandemic demonstrated the importance of a strong, co-ordinated and well-resourced STI system
Environmental 	• Climate change: what we support must promote environmental sustainability in the green economy • Sustainability: using the right energy from renewable resources • Accelerating and irreversible climate change • Increasing environmental degradation • Potential to leverage South Africa's rich diversity
Legal 	• TIA ACT still relevant • Opportunities to create regulations that shape compliance and encourage performance • Compliance with relevant legislative prescripts, including enabling legislation • Potential for the state to adopt stronger capital controls and increased taxation, potentially rendering the economy less competitive and hindering growth

10. External environment analysis

10.1 Global issues

An analysis of global issues[1] reveals the following:

1. Clean water and sanitation

Despite great progress, billions of people still lack access to safe drinking water, sanitation and hygiene. Achieving universal coverage by 2030 will require a substantial increase in current global rates of progress: sixfold for drinking water, fivefold for sanitation and threefold for hygiene.

Between 2015 and 2022, the proportion of the world's population with access to safely managed drinking water services increased from 69% to 73%; safely managed sanitation services increased from 49% to 57%; and basic hygiene services increased from 67% to 75%. This progress signifies an additional 687 million, 911 million and 637 million people gaining access to these essential services, respectively.

However, in 2022, 2.2 billion people still lacked safely managed drinking water, including 703 million without a basic water service; 3.5 billion people lacked safely managed sanitation, including 1.5 billion without basic sanitation services; and 2 billion lacked a basic handwashing facility with soap and water at home, including 653 million with no handwashing facility at all. Sub-Saharan Africa is furthest behind. During this period, while the rural population saw improvements in access, the urban population's access remained largely unchanged or decreased.

2. Poverty reduction and the SDGs

Extreme poverty, currently defined as living on less than $2.15 per person per day at 2017 purchasing power parity, has experienced a significant decline in recent decades. However, COVID-19 reversed this positive trend. Even before the pandemic, the pace of poverty reduction was slowing, with extreme poverty falling from 10.8% in 2015 to 8.4% in 2019. The average annual reduction rate was 0.54 percentage points between 2015 and 2019, less than half the 1.28 percentage-point rate observed between 2000 and 2014.

In 2020, the number of people living in extreme poverty rose to 724 million, surpassing the pre-pandemic projection by 90 million and reversing approximately three years of progress on poverty reduction. Recovery from the pandemic has been slow and uneven, with extreme poverty dropping from 9.3% in 2020 to 8.8% in 2021. About 41% of low-income countries experienced a higher poverty rate in 2021 compared to the previous year versus only 13% of upper-middle-income countries. The conflict in Ukraine has disrupted global trade, leading to increased living costs that are disproportionately impacting the poor. Furthermore, climate change poses substantial threats to poverty reduction. By the end of 2022, forecasting suggests that 8.4% of the world's population, or as many as 670 million people, could still be living in extreme poverty.

3. Wildlife and the environment

According to the World Wide Fund for Nature and the Zoological Society of London, there has been a 69% decline in vertebrate animal populations worldwide since 1970. Causes of the decline include habitat loss and over-exploitation through hunting, fishing and poaching. The highest losses have been observed in the oceans, where freshwater fish and populations of sharks and rays have experienced average declines of 83% and 71% respectively.

Since 1900, approximately 600 trees, flowers and fruit-bearing plants have become extinct across the globe. This took place at a rate of about three species a year, which is around 500 times higher than the background (natural) extinction rate. The United Nations Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services predicts that more than one million of all species are currently threatened with extinction. The bulk of threatened species are insects – for instance, dragonflies, bees, butterflies and beetles – which are crucial to maintaining healthy ecosystems, particularly concerning ecosystem services such as pollination and nutrient recycling.

The invaluable ecosystem services provided by the natural world keep us alive and sustain us – from the water we drink and the air we breathe to the ground that nourishes our food and the forests and oceans that not only regulate the Earth's temperature but also absorb greenhouse gases and other pollutants. However, the biodiversity and ecosystem functions and services provided by nature and also its essential contributions to people are under pressure from the irresponsible disposal of waste and our unsustainable use of natural resources.

4. Climate change

Climate change is one of the major challenges of our time. From shifting weather patterns that threaten food production to rising sea levels that increase the risk of catastrophic flooding, the impacts of climate change are global in scope and unprecedented in scale. The Earth's average land temperature has warmed nearly 1°C in the past 50 years as a result of human activity; global greenhouse gas emissions have ballooned by nearly 80% since 1970, and atmospheric concentrations of the major greenhouse gases are at their highest level in 800,000 years.

5. Food insecurity

The world is not on track to achieve Sustainable Development Goal 2, Zero Hunger, by 2030. On the contrary, acute food insecurity is rising dramatically. The causes include economic shocks which underpin increases in global food prices, weather-related disasters and increased demand due to continuing global population growth; in addition, domestic food price inflation in low-income countries has also risen considerably. Close to 193 million people were experiencing acute food insecurity in 2021, which is an increase of almost 40 million since 2020. This represents a staggering 80% increase since 2016.

6. Big data for sustainable development

The volume of data in the world is increasing exponentially. New sources of data, new technologies and new analytical approaches, if applied responsibly, can enable progress to be monitored better towards the achievement of the SDGs in a way that is both inclusive and fair.

[1] *Source: United Nations, World Economic Forum.*

7. Affordable and clean energy

The world continues to advance towards sustainable energy targets – but not fast enough. At the current pace, about 660 million people will still lack access to electricity and close to 2 billion people will still rely on polluting fuels and technologies for cooking by 2030.

Renewable sources power nearly 30% of energy consumption in the electricity sector, but challenges remain in the heating and transport sectors. Developing countries experience 9.6% annual growth in renewable energy installation, but, despite enormous needs, international financial flows for clean energy continue to decline. To ensure access to energy for all by 2030, we must accelerate electrification, increase investments in renewable energy, improve energy efficiency and develop enabling policies and regulatory frameworks.

8. Cybersecurity

Cybersecurity vulnerabilities are on the rise due to the rapid digitalisation of societies and industries. This was accelerated in part by the COVID-19 pandemic and the need for employees to work from home together with entrepreneurs needing to pivot to take advantage of or create opportunities in the digital economy. The risk of cyberattacks is accordingly greater than before, with malware and ransomware attacks rising dramatically.

10.2 Emerging technology and innovation challenges facing developing countries

It is broadly acknowledged that human development and economic growth are associated with rapid changes in technology. According to the United Nations Conference on Trade and Development (UNCTAD), the rate of change is likely to increase due to the proliferation of green and frontier technologies. Frontier technologies are capable of increasing productivity and improving livelihoods. For example, artificial intelligence (AI) combined with robotics can transform production systems, while 3D printing allows faster and cheaper low-volume manufacturing.

Frontier technologies combine digitalisation and connectivity, potentially combining and multiplying their impacts to boost productivity and improve livelihoods. These technologies include AI, the Internet of Things (IoT), Big Data, blockchain, 5G, 3D printing (also known as "additive manufacturing"), robotics, drones, gene editing, nanotechnology, solar photovoltaic and green hydrogen.

UNCTAD contends that whereas frontier technologies are created and developed by specific countries, all countries need to prepare for them. It also highlights the point that developing countries can use frontier technologies to leapfrog previous innovations and move quickly ahead. The organisation has created a readiness index for countries to assess their national capabilities to use, adopt and adapt these technologies equitably.

Developing countries that are performing well in using, adopting and adapting frontier technologies include India, Vietnam and the Philippines. This results from increased investment in infrastructure, enhanced technical skills and a conducive business climate. The index shows that countries in Latin America, the Caribbean and sub-Saharan Africa are the least ready to use, adopt or adapt to frontier technologies and are at risk of missing current technological opportunities.

South Africa's readiness index (and sub-index rankings) compared to those of selected countries is presented in Table 3.

Table 3: Selected countries' readiness to use, adopt and adapt frontier technologies equitably

Country name	Total ranking		ICT ranking		Skills ranking		R&D ranking		Industry ranking		Finance ranking	
	2021	2023	2021	2023	2021	2023	2021	2023	2021	2023	2021	2023
USA	1	1	14	11	17	18	2	2	20	16	2	2
Sweden	2	2	1	6	7	2	16	16	15	11	16	18
Germany	9	7	23	24	16	17	5	5	10	12	39	40
China	25	35	99	117	96	92	1	1	7	8	6	4
Russian Federation	27	43	39	32	28	32	11	13	66	54	45	69
Brazil	41	40	73	50	53	55	17	18	42	51	60	57
India	43	46	93	95	108	109	4	4	28	22	76	75
South Africa	**54**	**56**	**69**	**71**	**84**	**77**	**39**	**36**	**71**	**67**	**13**	**25**
Mexico	57	61	68	70	83	73	29	45	33	31	96	96
Mauritius	77	73	83	96	58	57	94	82	74	74	40	34
Egypt	87	83	117	91	67	66	42	47	100	90	116	119
Kenya	105	117	108	120	123	135	78	83	89	93	108	107
Nigeria	124	119	124	119	106	108	74	68	155	157	149	153

Number of countries: 158; Source: UNCTAD Technology and Innovation Report 2021 and 2023

South Africa ranks the lowest in its ability to use, adopt and adapt frontier technologies in the Brazil, Russia, India, China and South Africa (BRICS) grouping of countries, but is ranked the highest out of sub-Saharan African countries in the 2021 and 2023 periods. The country scores high in its finance and R&D ranking relative to its overall ranking, but low in ICT, skills and industry rankings. Furthermore, South Africa declined by two places in 2023 compared to its performance in the 2021 world rankings.

Frontier technologies already represent a USD1.5 trillion market,[2] which could grow to more than USD9.5 trillion by 2030 – about three times the current size of the Indian economy. But, so far, developed economies are seizing most of the opportunities, leaving developing economies further behind.

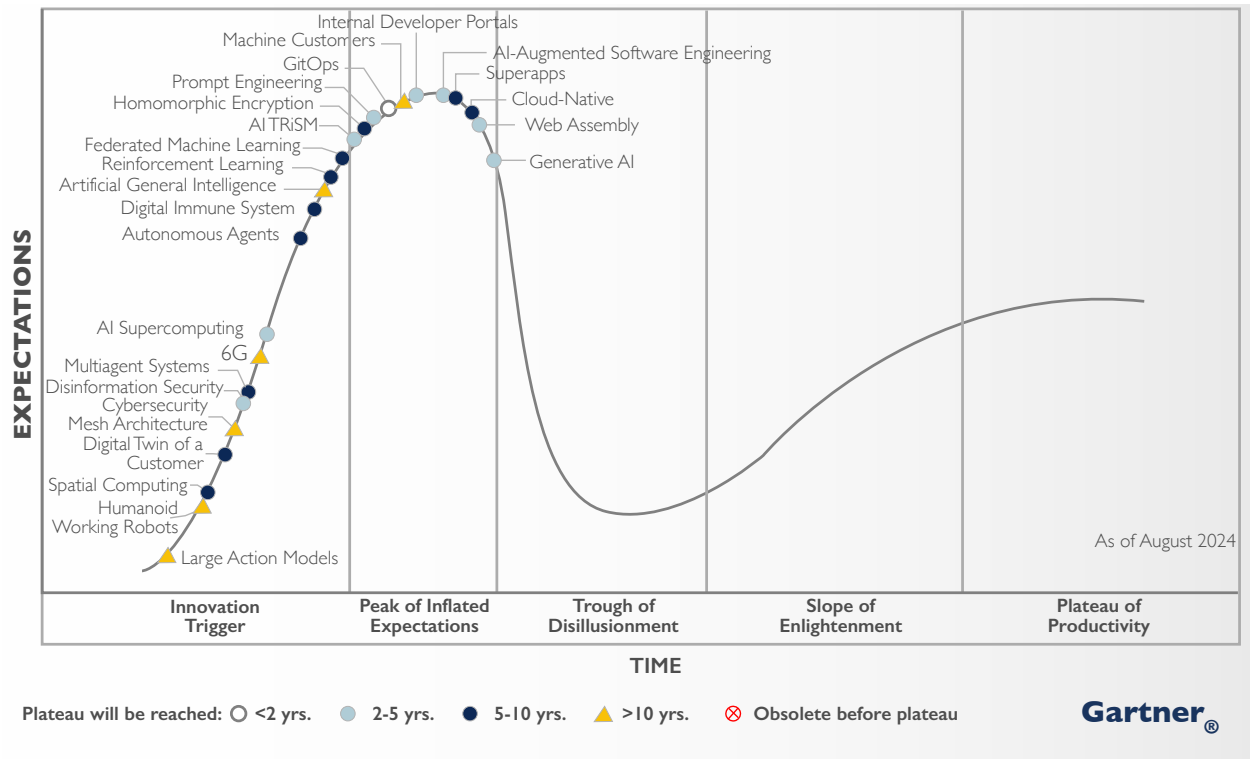
UNCTAD asserts that green innovation opportunities are time-bound and can be seized only through changes in policy, without which the windows may close. Countries that have taken advantage of the opportunities, such as Brazil and China, have done so through strong responses that include government policies. Developing countries can capture the economic gains associated with new technologies by ensuring that their businesses have the required capabilities. These include not just scientific or technical skills but also the necessary policies, regulations and infrastructure.

The digital nature of these frontier technologies is mirrored by Gartner in its annual emerging technologies hype cycle analysis. Gartner identifies technologies which are anticipated to affect business and society over the next two to 10 years, but particularly those that will support digital business transformation. In the 2024 hype cycle analysis, emerging technologies on the so-called "peak of inflated expectations" include machine customers, internal developer portals, AI augmented software engineering and Superapps. Interestingly, Gartner does not identify any technologies as being in the "trough of disillusionment", unlike in the past, suggesting that there are not many emerging technologies which were once over-hyped but have not yet matured.

The hype cycle has changed visibly since 2023: the 2024 hype cycle shows that at the peak of inflated expectations are machine customers, internal developer portals, AI-augmented software engineering and Superapps. According to Gartner, Generative AI is moving over the peak of inflated expectations as business focus continues to shift from excitement around foundation models to use cases that drive return on investment. These developments are accelerating Autonomous AI. Autonomous AI systems can operate with minimal human oversight, improve themselves and become effective at decision-making in complex environments. These advanced AI systems, which can perform any task a human can perform, are beginning to move slowly from science fiction to reality. Some technology variations did not even feature under the innovation trigger cycle in 2023 but are featuring at the peak of inflated expectations in 2024. This is indicative of a fast-paced industry. Figure 3 presents these emerging technologies in 2024. This year there are still no technologies that have fallen into the trough of disillusionment, which depicts technologies that performed below expectations.

[2] *UNCTAD Technology and Innovation Report 2023.*

Figure 3: Gartner's hype cycle for emerging technologies in 2024



10.3 South African research and innovation landscape

The TIA's mandate compels it to exploit knowledge resources that are generated in the research, development and innovation (RDI) system. It is therefore important that this system is productive and generates research outputs in fields that are directly relevant to South Africa's socio-economic development objectives. The assessment of this system is important as this enables mitigation mechanisms to be put in place in areas of poor performance. The RDI system is an important input and feeder to the TIA's pipeline of investible projects. This section outlines the status of South Africa's RDI systems: scientific and technological system, innovativeness and R&D expenditure.

Scientific and technological system

South Africa has managed to maintain its strong annual growth in scientific articles, an increase in the absolute numbers from 3 693 in 2000 to 27 208 in 2022. South Africa ranks 29th in the world, with 27 208 publications, and has a publication output per million population that increased steadily from 2004 to 2021 but declined slightly in 2022.

The rate of use of scientific outputs for socio-economic benefit is not at the desired level, though. This is particularly true in the case of commercialising the outputs of publicly funded R&D, but also extends to incremental innovation and the harnessing of existing knowledge and technologies to enable inclusive growth and development. An example of this is South Africa's patenting activity, which has declined significantly over the past few years. Domestic patents granted decreased from 694 in 2019 to 513 in 2022, while patent applications abroad dropped from 1 457 in 2020 to 968 in 2022.

After a period of growth in the total number of researchers, there has been a downward trend from 36 233 in 2017/18 to 34 072 in 2021/22. Between 2011/12 and 2017/18, the number of researchers in South Africa increased at a faster rate than the total employment in the country. Most researchers are based in the higher-education sector (86.3% in 2020/21).

Publications in emerging technology areas have grown significantly, with digitalisation growing from 171 publications in 2011 to 1 518 publications in 2022 and nanotechnology growing from 279 to 2 222 over the same period. Biotechnology dominates patent applications in manufacturing-related emerging technologies, with a share of 68% in 2022, followed by nanotechnology at 25% and the IoT at 8.7% between 2013 and 2022.

Innovativeness

According to the 2023 Global Innovation Index, in innovativeness South Africa ranks 12th among the 33 upper-middle-income group economies and ranks 2nd among the 28 economies in sub-Saharan Africa. Globally, South Africa ranks 59th among the 132 economies. Five input pillars capture elements of the national economy that enable innovative activities. These inputs are encapsulated in interventions that are made in institutions, human capital and research, infrastructure, market sophistication and business sophistication. Innovation outputs are the results of innovative activities in the economy and include two output pillars: knowledge and technology outputs, and creative outputs.

South Africa performs better in innovation outputs than in innovation inputs: it produces more innovation outputs relative to its level of innovation investments. In 2023, the country ranked 71st out of 132 countries in innovation inputs, lower than those in both 2021 and 2022. As for innovation outputs, South Africa ranks 57th. This position is higher than those of both 2021 and 2022.

In contrast to the increase in scientific publications, patent applications – one of the proxy indicators of inventiveness – have trended downwards in recent years: patents granted to South African residents have been on a downward trend over the decade. Domestic patents granted decreased from 694 in 2019 to 513 in 2022, while patent applications abroad dropped from 1 457 in 2020 to 968 in 2022. In addition, patents granted by the European Patent Office decreased from 80 in 2020 to 38 in 2022. In 2021 alone, the number of South African patents granted at the European Patent Office declined by 18.6%. However, there was a slight increase in patents granted by the United States Patent and Trademark Office from 125 in 2021 to 150 in 2022.

The proportion of patents granted to local inventors by the Companies and Intellectual Property Commission ranges between 9% and 12.1% of total patents awarded for the period 2008–2021. This is in stark contrast to most patents being awarded to local inventors internationally (with some exceptions). In 2021, the sale of South African IP increased compared to the previous year, but South Africa's share of receipts has significantly and consistently declined compared to all middle-income countries, dropping from 3.3% in 2016 to 0.8% in 2021 – reflecting a slowdown in investment and economic growth.

Another proxy indicator for measuring inventiveness is trademarks. These are marks or brand assets that are capable of registration in terms of trademark legislation and are used to register goods or services. The focus of trademarks filed by institutions in South Africa shows a significant decrease in the number of new trademark filings: at 85, 2015 had the highest number of trademark filings; by 2022, the number had declined to 22. South Africa's global ranking in the filing of trademarks stood at 59 in 2022. Trademark applications can be filed in different countries at different times. Trademarks are therefore often filed not by an institution but rather by the commercialisation partner, and only once commercial readiness is reached.

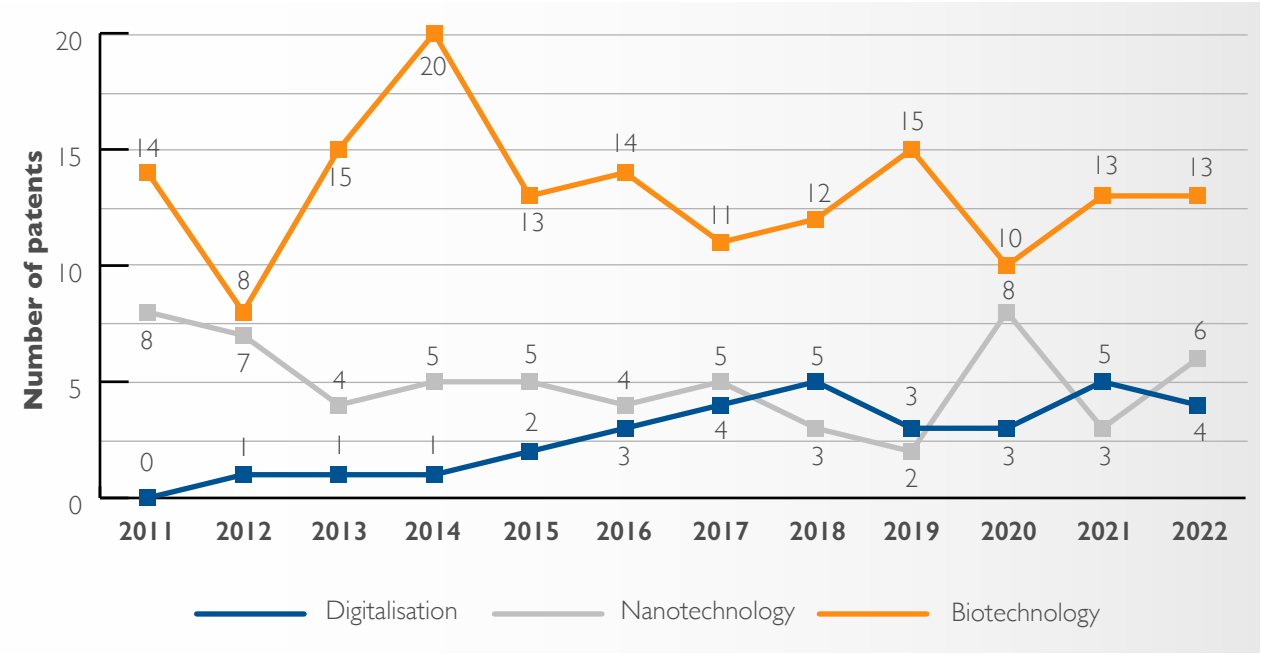


Figure 4: Trends in patenting for three emerging areas: digitalisation, nanotechnology and biotechnology

Source: National Advisory Council on Innovation STI Indicators Report 2024

Three high-growth technologies that have been identified in government documents and are the key building blocks of the government's push towards the Fourth Industrial Revolutions. These are digitalisation, biotechnology and nanotechnology. Digitalisation entails using digital technologies to change a business model and the process of moving to a digital business. AI is a driving force behind digital transformation, encompassing as it does innovations such as machine learning, 3D printing, the IoT, data-labelling platforms and predictive analytics. Table 4 shows the trends in patenting for the three emerging areas. Biotechnology has performed better than both nanotechnology and digitalisation in its inventiveness because it has produced the highest number of patents over an 11-year period. It is then followed by nanotechnology, which experienced a slump in 2017/18 but was able to recover and outperform digitalisation in 2022. Digitalisation has produced the least number of patents, although in 2018, 2019 and 2021 it fared better than nanotechnology.

Research and development expenditure

Gross expenditure on R&D GERD as a percentage of GDP declined from 0.76% in 2017/18 to 0.61% in 2021. The primary financiers of R&D are businesses, government and international sources, with there being considerable parliamentary funding available to institutions under the DSTI for specific projects in 2023/24[3].

Business expenditure on R&D has been on a consistently declining trend over the past decade. Despite a decrease in business sector R&D expenditure between 2017/18 and 2020/21, an annual increase of 26.4% was recorded in 2021/22. However, the business sector's share in GERD remains well below that for most of the decade (44.3% in 2012/13 and 35% in 2021/22). In recent years, the business sector has also experienced a decline in its capacity to attract foreign funding for R&D. This decrease reached a 20% decline during the 2020/21 financial year.

While a decline in overall R&D expenditure is of concern to the NSI, the continued decline in experimental development as a proportion of total research expenditure is of concern to the TIA specifically. Table 4 shows that expenditure on experimental development declined precipitously from 36.3% in 2011/12 to 23% in 2021/22. This was from a high of approximately 46% in 2006/07. Experimental development entails the systematic process of using existing and new knowledge to produce new or improved products or processes and it accounts for the bulk of GERD in leading countries. Given that experimental development enables product and process innovation that is crucial to economic growth, enterprise creation and employment, the TIA maintains that South Africa needs to invest more in it.

Table 4: Expenditure by type of research in South Africa (2012/13-2021/22)

Year	GERD R'000 (%)	Basic research R'000 (%)	Applied research R'000 (%)	Experimental development R'000 (%)
2012/13	23 871 219	6 030 827 (25.3)	11 064 247 (46.3)	6 776 146 (28.4)
2013/14	25 660 573	6 102 085 (23.8)	12 132 211 (47.3)	7 426 277 (28.9)
2014/15	29 344 977	7 133 213 (24.3)	14 331 016 (48.8)	7 880 748 (26.9)
2015/16	32 336 679	8 209 662 (25.4)	15 349 070 (47.5)	8 777 948 (27.1)
2016/17	35 692 973	9 542 644 (26.7)	17 061 167 (47.8)	9 089 162 (25.5)
2017/18	38 724 590	10 223 956 (26.4)	20 623 856 (53.3)	7 876 778 (20.3)
2018/19	36 783 968	10 364 091 (28.2)	19 316 433 (52.5)	7 103 444 (19.3)
2019/20	34 484 862	11 043 171 (32.0)	16 074 948 (46.6)	7 366 744 (21.4)
2020/21	33 541 332	9 856 349 (29.0)	15 848 231 (15.0)	7 836 752 (23.0)
2021/22	38 185 599	11 148 327	18 380 000	8 657 271 (23.0)

Source: South African National Survey of Research and Experimental Development Statistical Report 2021/22

According to UNCTAD science, technology, engineering and mathematics (STEM) are central to effective innovation, but are unevenly distributed across countries; and the availability, accessibility and affordability of quality education in STEM at the primary, secondary and tertiary levels are essential. They should, therefore, be promoted, prioritised and coordinated in order to create a social environment conducive to the promotion of STI.

Table 5 depicts the expenditure in STEM-related research over the past decade in higher education institutions. Expenditure in these fields declined from 68.8% in 2012/13 to 54.1% in 2021/22. This 14% decline in expenditure over the past decade does not bode well for innovation and the translation of public-funded IP into products and services. Among the STEM-related research fields, engineering has seen the largest decline, followed by applied sciences and technologies.

[3] *STI Indicators report 2024.*

Table 5: Proportional higher education sector R&D expenditure by research field 2012/13–-2021/22

Main Research field	2012/13 (%)	2013/14 (%)	2014/15 (%)	2015/16 (%)	2016/17 (%)	2017/18 (%)	2018/19 (%)	2019/20 (%)	2020/21 (%)	2021/22 (%)
STEM	68.8	67.5	68.1	64.2	59.8	61.0	57.5	57.6	53.4	54.1
Mathematical sciences	4.7	3.8	4.0	4.6	4.4	4.7	4.1	4.3	4.0	4.2
Physical sciences	2.6	2.7	2.8	2.9	3.1	3.3	2.9	2.8	2.6	2.1
Chemical sciences	6.1	3.9	3.9	3.9	4.1	2.8	3.4	3.7	2.9	3.0
Earth sciences	2.6	2.8	3.1	2.8	2.8	2.7	2.7	2.3	2.0	2.1
Information, computer and communication technologies	3.2	2.6	2.9	3.3	3.2	2.3	3.7	3.5	3.7	3.6
Applied sciences and technologies	3.4	3.8	3.3	2.8	1.2	0.6	1.2	1.4	1.5	1.4
Engineering sciences	10.5	11.7	11.0	9.0	7.9	7.0	8.2	7.8	6.5	6.2
Biological sciences	10.0	9.9	9.9	8.6	6.8	7.0	7.7	7.5	6.6	6.9
Agricultural sciences	3.8	4.3	4.2	3.3	3.8	5.0	4.1	3.7	4.2	4.9
Medical and health sciences	19.0	18.4	19.6	21.2	20.7	19.6	18.3	19.5	18.2	18.2
Environmental science	2.0	2.3	2.2	0.8	1.1	5.8	0.8	1.0	0.8	1.1
Material sciences	0.9	1.1	1.2	1.0	0.6	0.1	0.1	0.0	0.0	0.1
Marine sciences	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.4

Source: South African National Survey of Research and Experimental Development Statistical Report 2021/22

10.4 South African entrepreneurship and start-up ecosystem

The Global Entrepreneurship Monitor collects data to enable multidimensional analysis of the status of entrepreneurship in national economies across the world in a composite indicator dubbed the National Entrepreneurship Context Index. South Africa ranked 46th out of the 49 countries measured in 2023 and has the lowest score of the BRICS countries. The conclusion made in the report is that South Africa does not support entrepreneurship sufficiently, and that the country's entrepreneurial ecosystem does not show signs of improvement. South Africa's entrepreneurship ecosystem is out of step with its developmental goals and there is a great need for coordination and coherence to be established across the different spheres and levels of government..

On the venture capital front, at the end of 2023, the South African venture capital asset class had R10.73 billion invested in 1 106 active deals, an increase of 17.8% or R1.62 billion compared to 2022, but a decrease of 8.2% when comparing the number of deals entered into.[4] Venture capital is defined as financing that investors provide in the start-up and early growth phases to enterprises that are believed to have a high potential for growth in the long term. In 2023, ICT, which combines several active sub-sectors such as Fintech, Edtech, Software, eCommerce and Online Markets, continued to outweigh investment activity in other sectors. Fintech, a subsector of the ICT sector, remained the front-runner by value (18.3%) and number (14.8%) of deals. Active portfolios containing Western Cape-based businesses declined slightly, from 53.7% (2022) to 49.0% (2023) by value, yet their increase remained steady at 55.6% by deal volume. This province therefore continues to account for more than half of the overall venture capital activity in South Africa, with Gauteng making up one in three centure-capital deals.

A report on the 'tech' start-up ecosystem by Disrupt Africa[5] underscores the importance of more capital needing to be made available towards venture capital in South Africa, particularly from institutional investors. The authors maintain that there is a misconception locally that the risks in venture capital are too high, but stress that in mature financial markets the venture capital asset class is regarded as an essential part of a diversified institutional portfolio, whether a pension fund or a university endowment fund.

[4] *Southern African Venture Capital Association 2022 Venture Capital Industry Survey; STI Indicators Report 2023.*

[5] *The South African Start-up Ecosystem Report 2022.*

In 2023, 60 South African start-ups raised funding which stood at 14.8% of Africa's total, placing the country in third position on this count alone. However, this is substantially down on previous years and represents the lowest figure seen in six years. A solid 23.1% decline on 2022, when 78 start-ups were raised, while in 2021, 89 start-ups gained backing. So funded start-up numbers continue to fall.[6]

In South Africa, the sector spread of funded start-ups is relatively balanced; and while fintech tends to lead, the numbers are more distributed than elsewhere. In 2023, the transport sector performed unusually well, netting 21.7%, followed by the energy sector with 13.1%. The entertainment space contributed (5.4%), whereas e-commerce dwindled to only 2.1%. The logistics and e-health sectors came last, gaining 1.7% and 1.4% respectively.

The incubators and accelerators that provide support to tech start-ups are mainly located Cape Town and Johannesburg. The private sector supports start-ups and SMMEs in numerous ways. For example, South Africa's largest corporates and the Public Investment Corporation are shareholders in the SA SME Fund, a private-sector-led initiative that aims to stimulate the economy and create jobs. Likewise, universities provide various forms of support, some through their Offices of Technology Transfer.

Government support for start-ups and SMMEs is provided by the following organisations:

- Department of Small Business Development: Small Enterprise Development Agency, Black Business Supplier Development Programme, Youth Challenge Fund, Township and Rural Entrepreneurship Programme, and Small Enterprise.
- TIA: Seed Fund, Technology Development Fund, Commercialisation Support Fund.
- Department of Trade, Industry and Competition: Support Programme for Industrial Innovation, Technology and Human Resources for Industry Programme.
- Industrial Development Corporation: Funds entrepreneurs with industrial development.
- National Treasury: Jobs Fund.
- Various provincial initiatives, for example: Gauteng Provincial Government (The Innovation Hub, Gauteng Enterprise Propeller) and Western Cape Provincial Government (Design Innovation Seed Fund).

A report[7] assessing the venture capital industry highlights several key challenges that face the venture capital landscape in South Africa, which apply across the board, not just to digitally enabled or tech start-ups:

- High-potential start-ups need an accelerated improvement in quality to place them on a path to growth in order to upscale themselves quickly and become sustainable and fundable. Of the 490 tech ventures tracked, only 25.7% have undergone some form of acceleration or incubation compared to 38.6% of Egyptian ventures.
- More capital is needed for seed funding for very early-stage start-ups; this funding would enable more throughput of start-ups and serve to build a sustainable pipeline of investible deals by more mature venture capital funds.
- An appropriate regulatory framework is needed to enable the sector to thrive. This will entail simplifying the regulations affecting start-ups and removing the bureaucratic constraints on their growth, but also introducing suitable regulations that support and incentivise early-stage businesses.
- The translation of locally-developed IP into commercialised entities must be improved by deploying appropriate levels of risk capital when taking associated technologies to market.

10.5 Local and international policy environment

The NDP 2030 is a long-term vision for the country. It provides the programme through which South Africa can achieve economic transformation through development with the aim of eliminating poverty and reducing inequality by 2030. The NDP states that the country's competitiveness will be determined by the nature and extent of the vibrant national systems of innovation that will be in place, together with innovation and learning permeating business and society.

The NDP review is a process that was embarked upon to determine the progress in achieving vision 2030 as set out in the NDP. For the period under review (2012–2019), the economy remained in a low-growth trap, with GDP growing by only 1.3 % a year. This was well below the NDP target of growing the economy at 5,4% on average per annum by 2030. The NDP also set targets for reducing unemployment from 25.4% in 2010 to 20% by 2015, 14% by 2020 and 6% by 2030. The path to achieving the 2015 goal would have entailed the creation of 2.2 million jobs between 2010 and 2015, or 436 000 jobs annually. This would have relied on an average GDP growth rate of about 4.6% per annum. In the 2008 to 2017 period, the average annual job creation was 141 000, which is only 30% of what was needed. In the second quarter of 2024, the unemployment rate rose to 33.5%. According to a 2022 World Bank report, South Africa has been identified as the world's most unequal region; this is apparent from the unemployment statistics, which identify large sections of society as having no income or access to opportunities.

[6] *The African Tech Start-ups Funding Report 2023.*

[7] *Southern African Venture Capital Association 2022 Venture Capital Industry Survey.*

Employment continues to have a gendered and generational distribution. Women have far lower employment prospects than men: about 37% of women of working age are in employment compared to 50% of men. Youth (15–24 years) unemployment is persistently much higher than all the older age groups and has been consistently at about 50% in recent years.

The challenges identified include that in the period following the adoption of the NDP, strong political will and leadership to rally society and social partners to implement the Plan was absent. This lack of inspiration and implementation has left the country well short of its 2030 vision and targets. Consequently, the National Planning Commission started a campaign called a "A call to Action" seeking to mobilise all social partners to help the government get back on track to achieving vision 2030. This call to action was in response to the NDP review findings. The commission identified four implementation programmes that can help the country to get back on track on the path to vision 2030. These include implementation programmes for:

- national infrastructure;
- sectoral growth;
- a Just Energy Transition; and
- national state capability-building.

The 7th administration has a sizeable task ahead and has embarked upon dealing with these matters and related problems. This should provide a good basis from which to reinvigorate the implementation of the NDP urgently and decisively with strategic coherence, a process in which roles and responsibilities in the state institutions and among social partners are clearly articulated and accountability is enhanced.

The Economic Reconstruction and Recovery Plan of October 2020 aims to restore South Africa's economy by stimulating equitable and inclusive growth following the impact of the COVID-19 pandemic. The objectives of the plan are to create jobs through infrastructure investment and mass employment programmes, re-industrialise the economy with a focus on small businesses, speed up economic reforms to unlock investment and growth, fight crime and corruption, and improve the state's capability.

The DDM aims to improve service delivery through better planning across the three spheres of government at the national, provincial and local government levels and by enabling partnerships at the district level between communities, private industry and labour. The overall objective is to improve development and service delivery at the municipal, district and metropolitan levels.

The African Union's Agenda 2063 is a long-term people-centred strategic framework for the socio-economic transformation of Africa. Agenda 2063 calls for the sources of growth to be diversified to enhance Africa's economic performance and, in the long term, to raise large sections of the continent's population out of poverty. The strategic framework also fosters social transformation, economic industrialisation and entrepreneurship.

The United Nations Sustainable Development Goals (SDGs) aim to

- end poverty and hunger globally;
- combat inequality;
- build peaceful, just and inclusive societies;
- protect human rights;
- promote gender equality and the empowerment of women and girls, and
- ensure the protection of the planet and its natural resources.

The objective is to create conditions for sustainable and inclusive economic growth, shared prosperity and decent work for all.

10.6 South African STI policy environment

STI plays a pivotal role in contributing to equitable and inclusive economic growth and development, decent work, sustainable livelihoods, environmental protection and service delivery.

The White Paper on Science, Technology and Innovation of 2019 lays out the policy direction for the government to ensure that STI enjoys an increasing role in a more prosperous and inclusive society. It envisages STI increasing inclusive economic growth, promoting social development with an emphasis on transformation and supporting environmental sustainability. It also emphasises the need to improve policy coherence and more effective budget and programme co-ordination in response to persistent STI policy fragmentation across government institutions and with the private sector, publicly funded research organisations and civil society. The White Paper also emphasises the need to broaden the monitoring and evaluation systems, create a more enabling environment for innovation, develop local innovation ecosystems, increase investment support to technology-based SMMEs and provide support to grassroots and social innovation, among other objectives.

The Cabinet-approved Decadal Plan is the implementation plan that ensues from the White Paper on Science, Technology and Innovation and gives effect to the vision expressed in the White Paper for STI's 'enabling inclusive and sustainable South African development in a changing world'. In particular, innovation holds great potential for economic growth, employment creation, the improvement of livelihoods and enhancing government performance and service delivery. The interventions of the Decadal Plan seek to position STI, and innovation specifically, as central to sustainable socio-economic growth and development aimed at redressing poverty, inequality and unemployment and at the same time ensuring environmental protection.

11. Internal environment analysis

11.1 Organisational performance

In 2023/24 the TIA recorded a year-end output performance achievement of 79%, representing a total of 15 targets achieved out of 19 output indicator targets for the year. Compared to 94% in 2022/23. The TIA's performance achievements over the past eight years is presented in Figure 5.

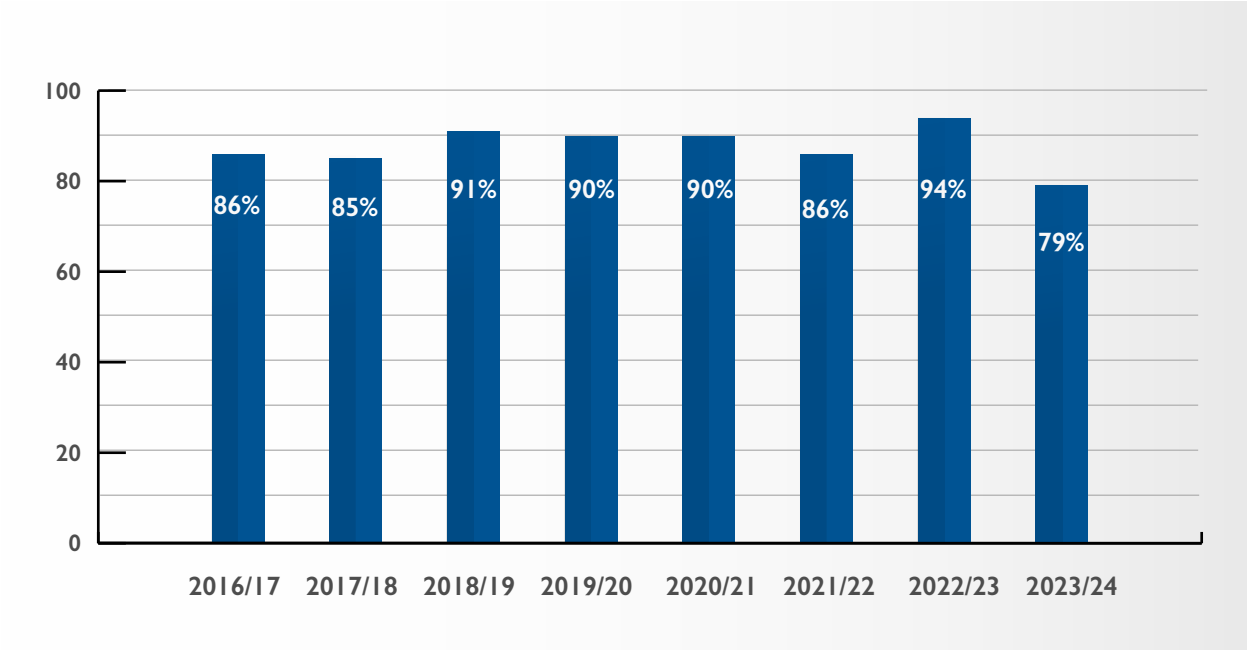


Figure 5: TIA's historical performance against its output indicator targets

Of the 19 annual output indicators, 13 relate to delivering on the Agency's core mandate, four to support services and two to transformation and inclusion. Regarding achieving the annual performance targets relating to the TIA's core mandate, the Agency met or exceeded 12 of its 13 performance targets, with the target for the number of technologies licensed or assigned not having been met. The Agency significantly over-achieved against the annual targets for the number of joint collaborations between public-funded research organisations and industry (75 against a target of 50), products launched (58 against a target of 40), revenue derived from commercialised innovations (R43.92 million against a target of R10 million), bio-based technologies developed (50 against a target of 30), SET and enterprise development support provided to SMMEs (3 537 against a target of 3 000), high-level human capital development (241 against a target of 130) and leveraged funds (R686.85 million against a target of R300 million).

Under-achievement has been registered against two organisational outcomes as contained in the TIA's 2020–2025 Strategic Plan, as shown in Table 6. These are delivering on the Bio-economy Strategy and SMMEs supported through Technology Stations. In 2024/25, efforts will focus on ensuring that the Agency achieves an acceptable level of achievement for these outcomes in particular.

Table 6: TIA's cumulative outcome performance for the period 2020/21–2024/25

Outcome	Outcome indicator	Baseline	Planned five-year target	2021/22 performance (target)	2022/23 performance (target)	2023/24 performance (target)	Cumulative achievement (target)
Commercialised Innovations	Technologies commercialised	77	175	49 (31)	61 (40)	80 (45)	216 (125)
Delivering on the Bio-economy Strategy	Successfully demonstrated bio-based technologies	–	75	36 (12)	37 (15)	50 (18)	160 (54)
	Bio-based entrepreneurs and organisations accessing SET services	–	600	45 (110)	67 (120)	197 (130)	474 (465)
SMMEs supported through Technology Stations	SMMEs accessing SET services	10 530	15 750	3 167 (3 150)	2 671 (3 250)	3 114 (3 400)	10 942 (12 190)

The following activities are planned towards enabling bio-based entrepreneurs and organisations to access SET services in order to meet their targets.

The TIA will intensify its efforts to achieve these targets by the end of 2024/25 – the final year of the five-year strategic cycle. This includes the Agency's focusing its efforts on implementing strategic calls for proposals through its portfolio of DSTI-contracted programmes such as the Strategic Industrial Bio-innovation Partnership Programme and the Agricultural Bioeconomy Innovation Partnership Programme; targeting SMMEs and small-scale farmers, and increasing the SET services offered to SMMEs through technology platforms, technology clusters and the Technology Stations programme. By means of this approach of technology diffusion and access through the TIA instruments, the Agency will enable access by small businesses and small-scale farmers to new or high-end technologies in the form of a subsidised arrangement.

To ensure that the target of SMMEs supported through Technology Stations is met, the TIA aims to increase access to SET knowledge, expertise and high-end equipment in technology innovation, process improvements and product development to innovators and SMMEs to enable them to grow and become more competitive. The Technology Stations Programme plans to partner with other role-players in the NSI and to invest in technological infrastructure. This and similar initiatives driven by the TIA are closely aligned to the relevant industrial sectors so that together they promote innovation-led industrialisation, localisation and export promotion.

11.2 Transformation

The TIA supports transformation broadly and inclusive innovation specifically. In line with national imperatives to resolve the triple challenges of poverty, inequality and unemployment, the Agency tracks the number of women, youths and persons with disabilities (or businesses owned by these groupings) it supports. And in line with the Agency's mandate to support publicly funded IP and underserved provinces, it also tracks the value of the support it provides to publicly funded research organisations and beneficiaries in underserved provinces.

Support to women, youths and persons with disabilities

At the output performance level, sub-targets are set for women, youths and persons with disabilities. The TIA's performance against its targets for 2021/22, 2022/23 and 2023/24 are shown in Figures 6, 7 and 8.

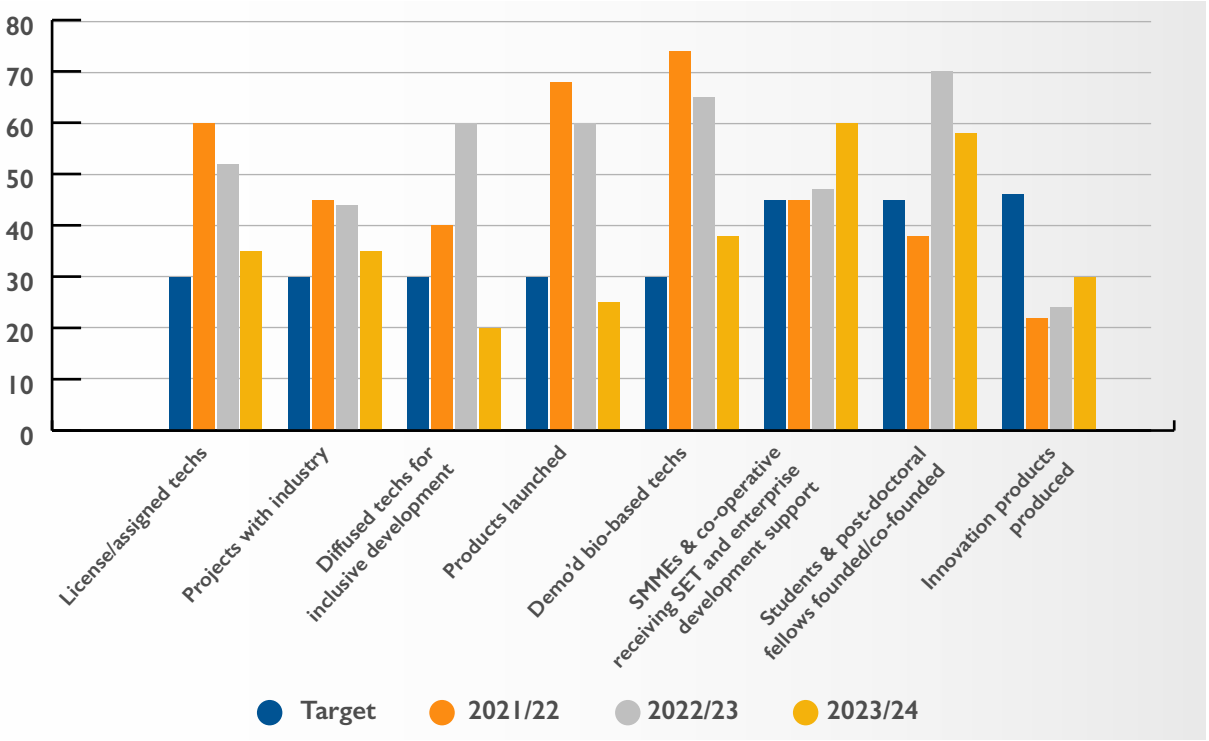


Figure 6: TIA's performance against output sub-targets for women in 2021/22–2023/24

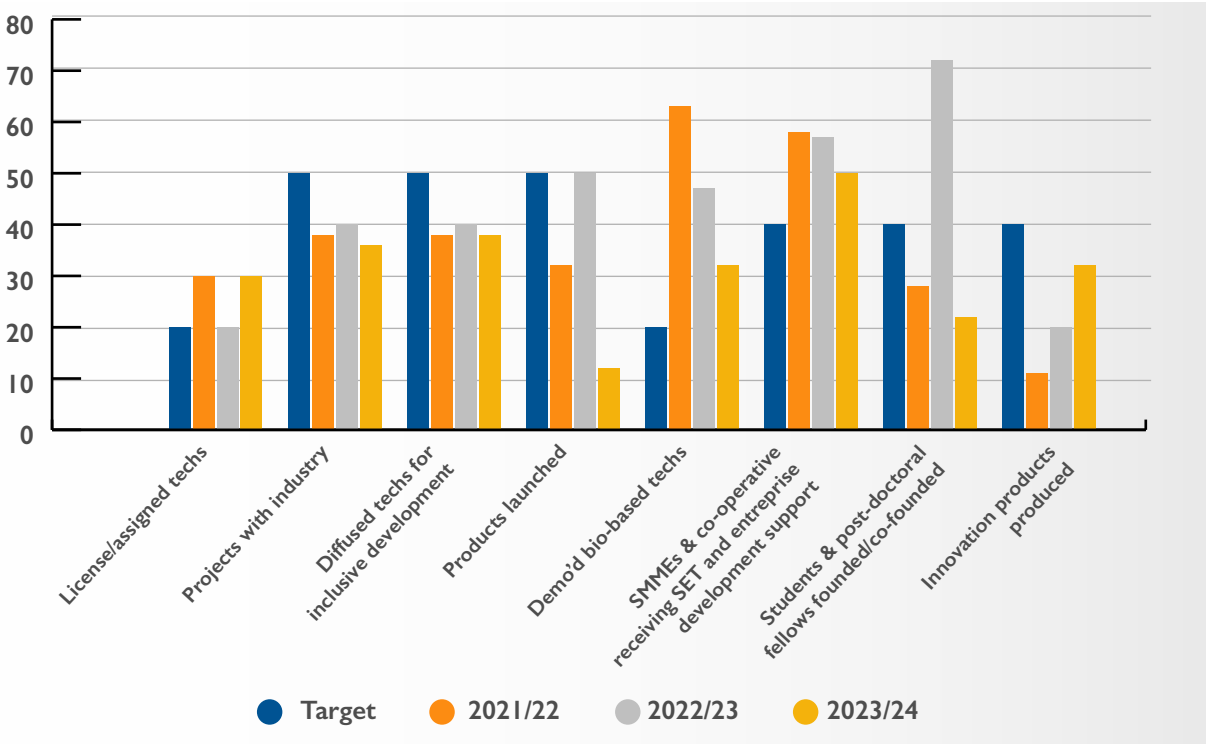


Figure 7:TIA's performance against output sub-targets for youths in 2021/22–2023/24

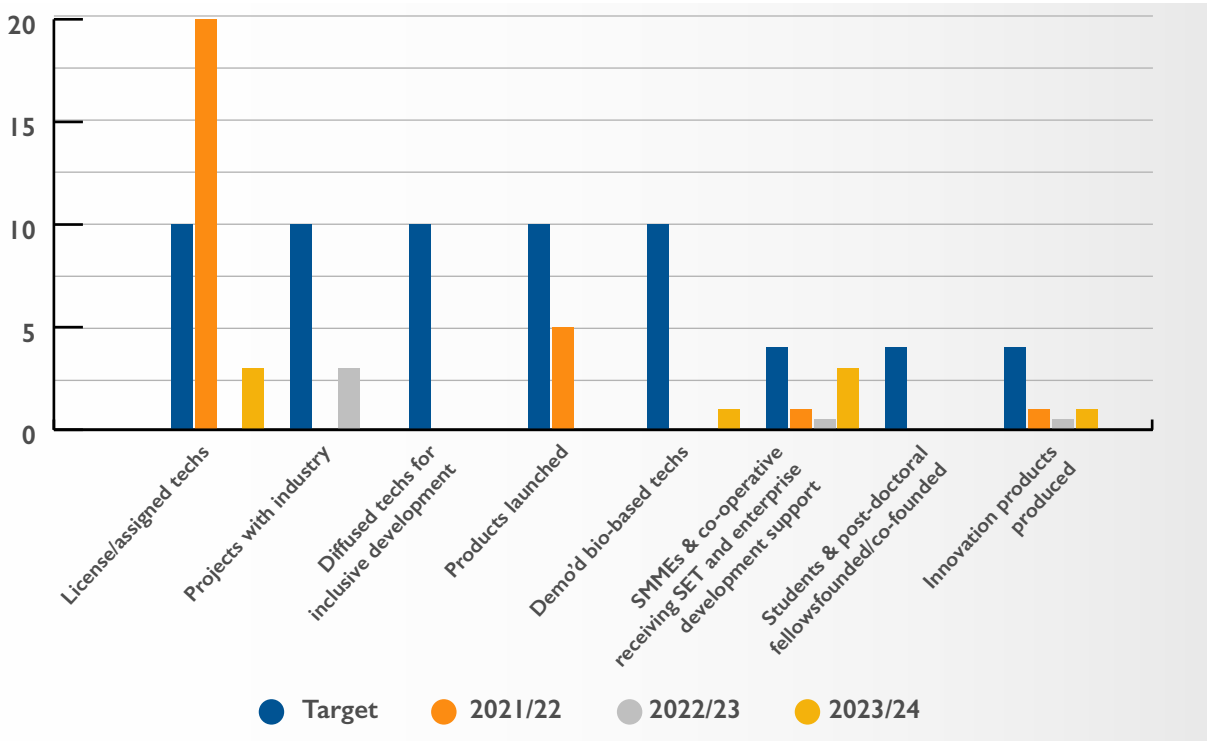


Figure 8: TIA's performance against output sub-targets for persons with disabilities in 2021/22–2022/23

With respect to women beneficiaries, the TIA met five of its eight sub-targets (63%) in 2023/24 compared to seven out of eight (88%) in 2022/23. In the case of youths, the Agency met three out of eight sub-targets (38%) in 2023/24 compared to six out of eight (75%) in 2022/23. It did not meet any of its targets to support persons with disabilities in 2023/24; the same result was recorded in 2022/23.

The TIA's innovation programmes in support of women, youths and persons with disabilities were launched late in 2023. Accordingly, the Agency expects to see an improvement in performance from 2024/25 onwards. Owing to a lack of MTEF funding and with the TIA not being able to secure commitments from any government departments approached to dedicate funds to the transformation programme, the Agency was not able to implement its transformation programmes as intended. However, the Allan and Gill Gray Foundation committed R1.5 million to co-funding the implementation of the Youth Technology Innovation Programme in Limpopo. This will form part of the Higher Education Innovation Fund launched by the Minister in March 2024.

11.3 Operating environment

Internal environment

Hybrid work arrangements have become the norm, with employees working partly from the TIA's offices and partly remotely. Business capabilities that are enabling hybrid work include full process automation, the provision of end-user devices and technology, together with varied information security tools for network and device protection to ensure confidentiality and maintain business integrity.

The implementation of the TIA 2.0 framework – a roadmap conceived as a result of the recommendations stemming from the Ministerial Supplementary Review – is in full effect. The TIA seeks to reconfigure the way in which the Agency operates and fulfils its mandate. A broad framework for rebuilding the TIA over the next ten years has been established. This framework entails the Consolidate, Grow and Scale phases. The Consolidate phase involves building on the Agency's current successes while also enabling it to address gaps in the current organisational configuration and systemic challenges of the NSI. In this regard, the Agency pays particular attention to improving its operational efficiencies about the turnaround times of investment decisions, its organisational leadership and its commercialisation capabilities, among other aspects.

The Consolidate phase began shortly after the Ministerial Supplementary Review recommendations were published and work aimed at reconfiguring the institution began in earnest shortly after that. This work included developing the Commercialisation Enablement strategy and strengthening the Investment Management Value Chain. The Commercialisation Enablement strategy is a pragmatic framework that underpins the exploitation of publicly funded assets in support of discharging the TIA's mandate. The review of the Investment Management Value Chain has been aimed at dealing with the low rate of approvals and the high rate of rejections in investment decision-making. Other challenges the review aims to resolve include prolonged business turnaround times and poor post-investment management and monitoring.

The 2025/26 financial year continues to form part the Consolidation phase and the TIA will continue to institute operational improvements in preparation for the Grow phase, during which the organisation will be in a position to operate optimally and expand its footprint and impact. The TIA 2.0 strategy will be implemented through a systematic process of change and transition management. A change management plan has been developed to ensure a smooth transition towards a more efficient organisation.

TIA 2.0 business model

The TIA currently adopts a direct funding approach that is structured around the three key roles of connector, funder and facilitator. The proposed TIA 2.0 business model aims to introduce significant changes and developments within the ecosystem, and also to respond favourably to the deepening socio-economic challenges of low growth, poverty, inequality and unemployment. The business model is founded on six building blocks which focus on a Revenue and Funding model, Leadership and Corporate Governance, Operating Environment, Resources, Innovation Intelligence, and Focused Interventions. The model gives direction on the way the Agency will create, deliver and capture mutual value in exchanges with its shareholder, partners, key stakeholders and customers or clients.

The business model proposes three pillars of financial support: Direct Funding, the Fund-of-Funds and the SIP. The Direct Funding pillar of financial support is currently in use and will continue to play an important role in the TIA's business model in future as it is closely aligned with the Agency's core value proposition of being the only national entity in the innovation ecosystem that is willing and mandated to support early-stage high-risk opportunities. The key challenges to be faced in strengthening the Direct Funding pillar are organisational capabilities relating to efficiency, capacity for due diligence, deal structuring and commercialisation.

The Fund-of-Funds involves establishing a SPV that is intended to crowd in private- and public-sector participation towards achieving the key objectives of the TIA mandate, particularly the support for commercialising projects. The use of an SPV model ensures that returns generated from the fund are ring-fenced to support the furtherance of the TIA mandate; it also ensures that the focus of the fund will not affect the funding of high-risk projects due to competition for limited funding. However, the returns from the SPV help actually to supplement funding towards the de-risking mandate of the entity.

This implementation of a Fund-of-Funds financial support pillar represents an important shift in the TIA's financial support approach at a relatively small scale. The Agency has already embraced this model through its Industry Matching Fund by supporting emerging venture capital fund managers and its intended deployment towards a targeted programme for the support of several emerging black venture capital fund managers.

SIPs are an approach by which the TIA intends to effect significant and seismic changes and shifts in the economy by investing in large-scale multi-year and multi-stakeholder collaborative innovation programmes that are sufficiently catalytic to change existing industries and build new ones around South Africa's R&D capabilities and competencies. The Agency's business model promotes the formation of multi-stakeholder Sector Thematic Networks that will bring together partners in the NSI from the research community, industry, the entrepreneurship ecosystem, government and international partners to conceptualise and motivate the establishment of a SIP with a view to pursuing innovation programmes in specific areas of technology domains.

In addition to the financial support that the TIA provides, it will also provide non-financial support on a case by case basis. An enabling environment for innovation is a critical success factor for an effective and efficient NSI in South Africa. The TIA business model and operating model will be structured around six strategic enablers: culture, skills, infrastructure, business support services, partnerships and networks, and innovation governance.

The TIA will continue to provide mentoring, business support services and advisory services as part of its role as enabler of commercialisation. These are designed to help innovators and entrepreneurs overcome challenges, accelerate their growth and bring their innovations successfully to market. These non-financial support elements are important de-risking tools. The Agency will play a more effective role as an Innovation Curator that promotes, creates and supports an enabling environment for the seamless progression of ideas from various industry role-players and stakeholders to market. Overall, the Agency's role as innovation curator underscores its dedication to creating a robust and resilient innovation ecosystem. Through strategic foresight, selective engagement and a steadfast commitment to long-term development, the Agency ensures that South Africa remains a leader in technological innovation and economic growth.

The TIA will develop a clear thought leadership strategy by defining objectives that will include influencing policy, driving innovation and fostering collaboration. We will focus on key themes such as sustainable development and technology transfer. In this regard, the Agency will play an effective interventionist role as an "industry builder", which involves supporting and nurturing industries or sectors, particularly in areas where market forces alone are insufficient to drive growth. Its role as Venture/ Industry Builder will be particularly important as it scales up the organisation and implements SIPs.

TIA 2.0 operating model

The purpose of the operating model is to move the organisation from the current implicit operational practice to a formalised and explicitly documented operating model that is infused in the management and governance framework of the TIA. In this regard, the operating model will help to shift operations from fragmented and disjointed activity and a silo approach to programme-driven activity. It will build on the pockets of good practice in the TIA where clustering or programmatic initiatives are being implemented.

The operating model will continue to be shaped by policies and strategies that govern the way decisions and work execution are implemented. In the process, strategies and policies specific to functions and held together by overarching policies and strategies will be strengthened. Formal institutional mechanisms such as quarterly reviews and cross-functional teams will enable the effective implementation of the operating model. The enterprise information architecture and systems to modernise and automate business processes will be implemented across the organisation and integration across the operating model will be ensured.

The new operating model will be put in place to ensure that it drives a more integrated and scalable approach to efficiently manage resources, enhance collaboration among stakeholders and ensure alignment with national and regional strategic objectives. The model will accordingly focus on coordinated innovation initiatives that leverage synergies across various sectors, clusters and regions. Fragmentation limits the overall impact on economic growth and societal advancement, and therefore it needs to be avoided.

Moreover, the focus on partnerships and leveraging capacity in the innovation ecosystem will be sharpened. The partnerships entered into will range from government, the private sector and academia to international investors as a strategy for pooling resources, sharing risks and driving large-scale high-impact innovation projects. An intensified and aggregated focus on enabling commercialisation that creates market-ready products that ultimately leads to industry growth will be put in place. The operating model will also focus on optimising the use of resources to scale up the TIA's innovation activities that centre on innovation clusters, implementing strategic multi-stakeholder programmes and achieving financial sustainability. The leveraging of digital technologies and solutions will be enhanced to provide for efficient management, monitoring and data-driven decision-making across the TIA's operations, improving performance monitoring and ensuring continuous improvement efforts. The operating model will also focus on strengthening the Agency's visibility and brand perception within the innovation ecosystem; in line with this, an orientation towards thought leadership and innovation curation will be adopted.

Each TIA funding mechanism will have specific roles, processes and supporting systems aligned with the overall objective of driving innovation and commercialisation. An effective operating model focused on supporting the commercialisation of innovations must align with the Agency's strategic objectives and global best practices.

TIA 2.0 organisational structure

Implementation of the TIA 2.0 strategy is still at an early phase of implementation and therefore the organisational design and structure have not yet been finalised as at the start of the new five-year strategic cycle. This process will be finalised following the formalisation and adoption of the new business model and operating model.

A key area that emerged from the Ministerial Review is whether the TIA has the appropriate capability to execute its core business. The current organisational design elements of the Agency going into the new strategic cycle are depicted in Figure 9.

Figure 9: Features of the TIA's existing organisational design

A gap analysis was conducted, resulting in the following organisational design considerations:

- Enterprise Risk Management: Weaknesses exist in fully embedding risk management across all levels of the organisation. The Agency will consider elevating this function and adding functions or responsibilities to the function, including business continuity planning and execution and an anti-fraud and anti-bribery programme.
- Organisational Compliance Management: The challenge observed is that there is currently a decentralised approach to compliance management. The Agency will consider establishing a well-positioned central organisation-wide Compliance Management Function.
- Role of Information Technology: IT should be governed to support the Agency in setting its strategic objectives. The Agency will consider establishing several positions, including a Chief Digital Officer and a Chief Technology Officer, and creating an ICT-centred operational unit together with an ICT sub-committee to drive a digital strategy, an AI strategy and more.
- New Core Function: The Agency will consider creating a Chief Investment Officer position to diversify its funding models and to have in place a centralised investment management function.
- Strategy Execution: A challenge exists, in implementing the strategy. To meet this challenge, the TIA will consider elevating and capacitating the Strategic Planning function to include and/or strengthen other functions such as research, intelligence, stakeholder partnerships and relationship management.
- Corporate Services: Include a function to drive Environment, Social and Governance.

11.4 Financial overview

For the fifth financial year in a row, the TIA has disbursed more than 90% of its MTEF allocation. Total disbursements to project-related activities totalled R502 million, which was 14% in excess of the budget. This was attributable to a greater than budgeted for disbursement to ring-fenced programmes made possible through the returns earned from the exit of an investment.

Of the TIA's total disbursements, 42% was spent in the Bio-economy Division, 21% in the Commercialisation Division, 12% in the Innovation Enabling Division and 26% went towards the Technology Stations. The disbursements were directed at a variety of programmes, including Technology Innovation Cluster initiatives aimed at leveraging off private-sector funding. During the reporting period, efforts were dedicated not only to managing the existing portfolio but also to building a pipeline of investments. At year-end, several projects in the pipeline requiring funding of approximately R200 million were at advanced stages of due diligence, with some approvals expected during the first half of the 2025/26 financial year.

The TIA received an allocation of R80 million for a portfolio of 20 projects that were approved by the DSTI under Phase 1 of the Innovation Fund. An amount of R102.2 million has been received under Phase 2, R100 million under Phase 3 and R100 million under Phase 4. All of the Phase 1 funds have been committed, including the use of R3.1 million in interest on Phase 1 funds received. A total of R50.7 million has been disbursed under Phase 2 and R6.4 million under Phase 3, with all of the funds fully committed, except for R30 million. The Agency has fully disbursed R100 million from Round 4 funding towards the establishment of a High Impact Seed Fund-of-Funds partnership.

The TIA has an allocation of R470 million for 2025/26 with a commitment book of R200 million, with more than R270 million available for investments and operational expenditure. The modest quantum of available funding for new projects represents a material risk for the Agency and places more emphasis on the entity to source additional funding through strategic relationships with partners, both locally and internationally. In addition, as part of the Consolidate phase of the TIA 2.0 strategy, the entity will review its funding and revenue model, including the implementation of equity and related instruments, to improve its access to capital in the future.

While this funding is inadequate for the purposes of fulfilling the TIA's mandate effectively, the Agency remains reliant on funding from the fiscus through the MTEF allocation. During the current year, various initiatives are planned in order to drive the increase in other income. This includes the leveraging of approximately R780 million from partnerships and collaborations in the NSI. In addition, the budget includes a royalty target of R15 million together with income from the management of specific contracts (R7 million) and also income leveraged through strategic relationships with Sector Education Training Authorities (SETAs) (R6 million) as other areas for generating income.

Given its past performance, the TIA is well poised to deploy funds effectively in the NSI and to continue to bolster its funding capacity through effectively leveraging partnerships.

11.5 Institutional approach to the Decadal Plan

To institutionalise the implementation of the Decadal Plan on STI and to respond to the priorities of the MTDP, the TIA has adopted a Thematic Impact Areas approach in operationalising its business model. This approach indicates the ways in which the priorities of the Decadal Plan have been grouped to achieve specific objectives, together with very selected focus areas based on a detailed analysis of the Decadal Plan against the backdrop of an analysis of the strengths and weaknesses of the Agency's investment portfolio. This thematic approach will also ensure that a meaningful impact will be achieved when responding to the MTDP priorities.

The TIA's approach to the Decadal Plan will be premised on the implementation of SIPs. These SIPs represent an approach by which the Agency will effect significant changes by investing in large-scale multi-year and multi-stakeholder collaborative innovation programmes that are sufficiently catalytic to transform existing and build new industries centred on South Africa's unique R&D capabilities and competencies.

This approach represents a significant shift in the way the Agency undertakes its work. It will drive true internal collaboration in the TIA in addition to fostering collaboration with partners and stakeholders in the innovation ecosystem. The adoption of the Thematic Impact Areas will inform decisions about initiating new or existing projects, initiatives or programmes, or even scaling up projects, initiatives or programmes.

Critically, the Strategic Initiatives of the Agency to be implemented in the forthcoming planning period will be formulated so as to respond directly to the selected Thematic Impact Areas as reflected in Table 7.

Table 7: TIA Decadal Plan Thematic Impact Areas

THEMATIC IMPACT AREA	OBJECTIVES	FOCUS AREA
Advanced Manufacturing and Industrial Modernisation	• Modernise the manufacturing sector to enhance competitiveness and create jobs • Leverage South Africa's mineral wealth for value-added processing and advanced manufacturing	• Industry 4.0 technologies in manufacturing • Value-added Minerals Processing and Beneficiation • Advanced Manufacturing and Skills Development
Agricultural Innovation and Food Security	• Enhance agricultural productivity and sustainability to ensure food security • Modernise agriculture through technology to create jobs and support rural development	• Agri-tech Solutions • Sustainable Farming Practices • Agro-processing Value Chain Development
Health Innovation and Well-being	• Improve healthcare delivery and outcomes through innovative technologies • Resolve public health challenges such as HIV/AIDS, tuberculosis and non-communicable diseases	• Telemedicine Platforms and Health Information Systems for Digital Health • Affordable Medical Devices and Diagnostics Technologies • Health Research and Innovation
Energy Sustainability and Environmental Innovation	• Ensure reliable and sustainable energy access to support economic growth • Promote environmental sustainability through innovative practices and technologies	• Renewable Energy Technologies • Innovation for Energy Efficiency • Environmental Technologies in Waste, Water and Pollution
Digital Transformation and Inclusive Innovation	• Drive economic growth and inclusivity through digital technologies. • Ensure that innovation benefits all segments of society, particularly marginalised communities.	• Artificial Intelligence • Transformative Digital Innovations • Innovation for Inclusive Development

PART C

MEASURING PERFORMANCE

The TIA's 2020–2025 Strategic Plan seeks to reposition the Agency within the NSI and rests on three pillars, which are the basis of the Agency's three outcomes over the five-year period:

12. Intensified commercialised innovations

12.1 Outcome 1: Intensified commercialised innovations in support of inclusive economic growth, sustainable development and transformation

Impact statement

The TIA aims to commercialise innovations that are economically sustainable in a way that they have a positive impact on the lives of all South Africans.

Outcome statement

The TIA seeks to direct a greater proportion of its resources at the translation and commercialisation of IP emanating from publicly funded organisations such as universities and science councils. The purpose of doing so is to improve the lives of South Africans and to contribute to economic growth and development. The Agency's progress towards achieving Outcome 1 during the 2025–2030 Strategic Plan period will be tracked by reporting on the number of technologies commercialised annually.

12.2 Planned outputs and output targets

The TIA has developed seven outputs to achieve the desired outcome of intensified commercialised innovations in support of inclusive economic growth, sustainable development and transformation with the aim of achieving socio-economic stimulation, growth and development.

The Agency seeks to implement a quadruple helix approach to innovation by establishing linkages through collaborative projects/initiatives/programmes between publicly funded research organisations, government, civil society and industry. The TIA also aims to increase the conversion rate of IP from publicly funded research organisations by exploiting the resources of the private sector and promoting the Agency's competitiveness. Selling publicly funded IP associated with technologies that have been de-risked by the Agency and fostering joint collaborations between publicly funded research organisations and industry are two pathways by which to raise the conversion rate of such publicly funded IP. The Agency will support the demonstration of innovations from key sectors of the economy aligned to the Decadal Plan, including bio-based technologies, products or services in the areas of agriculture, health, industrial biotechnology, IKS and other bio-based domains.

The diffusion of existing technologies to community structures, SMMEs, co-operatives and other business formations for inclusive socio-economic development constitutes the TIA's second output. The third output is having start-ups or SMMEs launch products into the market, this being an important measure of the success of commercialising innovations fully. All of this will be achieved by prioritising underserved provinces, youths, persons living with disabilities and women as means of ensuring that the most vulnerable members of society are given access to opportunities.

The TIA's output targets in support of commercialising innovations are presented in Tables 8 and 9.

Table 8: Outcome 1 outputs, performance indicators and targets

Output	Output indicator	Audited actual performance			Estimated performance	MTEF period targets		
		2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
1.1 Joint collaborations between publicly funded research organisations, government, civil society and industry	Number of projects involving industry being executed	New indicator	New indicator	New indicator	New indicator	58	65	75
1.2 Technologies diffused for inclusive development	Number of successfully diffused technologies	12	18	22	24	28	40	54
1.3 Products launched	Number of products launched	37	43	58	44	48	60	70
1.4 Bio-based technologies developed	Number of successfully demonstrated bio-based technologies	36	23	54	37	40	45	50
1.5 De-risking of public funded IP	Number of IP and knowledge-based innovation products produced	179	197	217	220	250	255	265
1.6 Support for underserved provinces	Allocation of funds to underserved provinces	New indicator	66% allocation of funds	50% allocation of funds	At least 30% of available investment funds allocated	At least 30% of available investment funds allocated	At least 30% of available investment funds allocated	At least 30% of available investment funds allocated
1.7 Support for designated groups	Allocation of funds to designated groups	New indicator	47% allocation of funds	79% allocation of funds	At least 50% of available investment funds allocated	At least 50% of available investment funds allocated	At least 55% of available investment funds allocated	At least 60% of available investment funds allocated

Table 9: Outcome 1 output indicators and annual and quarterly targets (2025/26)

Output indicators	Annual target	Q1	Q2	Q3	Q4
1.1 Number of projects involving industry being executed	58	8	17	16	17
1.2 Number of successfully diffused technologies	28	4	6	6	12
1.3 Number of products launched	48	7	8	12	21
1.4 Number of successfully demonstrated bio-based technologies	40	5	5	15	15
1.5 Number of IP and knowledgebased innovation products produced	250	50	50	70	80
1.6 Allocation of funds to underserved provinces	At least 30% of available investment funds allocated	No target	No target	No target	At least 30% of available investment funds allocated
1.7 Allocation of funds to designated groups	At least 50% of available investment funds allocated	No target	No target	No target	At least 50% of available investment funds allocated

12.3 Explanation of planned performance

Advanced Manufacturing

Advanced Manufacturing is becoming increasingly dependent on ICT platform technologies for the transition to Industry 4.0. The focus will be on improving manufacturing competitiveness through technology adoption and diffusion via low-cost digitisation and digitalisation technology solutions that are easily transferable and scalable across manufacturing sub-sectors. The TIA will therefore focus its efforts in new areas such as Industry 4.0 with a specific emphasis on Smart Factories, Smart Materials, Advanced Robotics and Additive Manufacturing.

Energy

The Energy strategic focus areas are Renewables, eMobility, battery storage, carbon capture and utilisation technologies and Just Energy Transition, which is about moving towards a lower-carbon, greener future while enabling the creation of new job opportunities for those displaced by the replacement of coal with these cleaner technologies. A climate change programme that focuses on climate mitigation and climate adaptation will be implemented.

Natural Resources

The Natural Resources strategic focus areas are water resource management, waste management, the circular economy, climate resilience and the mining value chain. TIA will focus on ensuring water security by using advanced technologies to improve efficiencies in a sustainable manner.

Information and Communication Technology

The technology strategic focus areas related to the Fourth Industrial Revolution (4IR) are AI, big data and block chain. These technologies will be considered in only the following sectors: agriculture, energy, green economy, health, manufacturing, mining, space and water, waste and the circular economy.

- Wireless connectivity: A key focus here is wireless technologies that will enable 5G networks or increase universal broadband connectivity.
- Cyberinfrastructure and cybersecurity technologies: These are ICT systems that provide particularly powerful and advanced capabilities, for instance, cloud computing, high-performance computing and quantum security.
- Scalable ICT-inclusive innovations: These are technologies that redress social injustices in a scalable and sustainable manner.
- Digital economy: This includes digital innovations that seek to advance public service delivery; efficiency in business; and consumer services.

Bio-economy

The Bio-economy comprises four strategic focus areas: agriculture, health, industrial biotechnology and indigenous knowledge systems (IKS). These will make contributions to Outcome 1.

South Africa's rich biodiversity and abundant natural resources offer a significant opportunity to contribute to stimulating economic growth and development. The country's diverse array of feedstocks, including sugarcane, forestry and agricultural waste, holds considerable potential for the production of a wide range of bio-based products, including biofuels, biochemicals and biomaterials. This transition to a bio-economy aligns with the country's commitment to supporting industrial modernisation through advanced manufacturing because it offers an innovative approach to industrial production that promotes environmental sustainability.

Agriculture

The South African agriculture sector contributes approximately 2.6% to GDP and plays a crucial role in employment, accounting for about 5% of the workforce. However, it faces several challenges, including climate change and drought, rising input costs and biosecurity challenges stemming from outbreaks of disease. Despite these challenges, significant opportunities exist to create economic opportunities and enhance community livelihoods. To deal with these issues, the TIA is committed to promoting innovation in the agricultural sector in order to strengthen its role in providing food security, improving nutrition and enhancing resilience to the impacts of climate change. This will entail developing and deploying technologies, including indigenous knowledge (IK)-based technologies, that support the intensification of agricultural production, boost value addition and agro-processing and improve the distribution of agricultural products. The Agency will provide both financial and non-financial support for developing and commercialising impactful technologies, products and services that contribute to a competitive, inclusive and sustainably growing agricultural sector.

During the course of 2024/25, the TIA has undertaken to develop an ethnoveterinary medicine investment portfolio in order to support the advancement of the application of the IK-based technologies in improving animal health. To this end, the Agency is committed to supporting the development and mainstream commercialisation of IK-based innovations that are aimed at treating various animal health conditions and developing innovative animal feed solutions that offer enhanced capabilities and opportunities for animal production.

Health

The TIA intends to support efforts to resolve South Africa's quadruple burden of disease by stimulating and supporting the development, registration, local manufacture and commercialisation of products and services that meet the healthcare needs of the country. The Agency strives to promote measures that will lead to the diagnosis, prevention and treatment of priority diseases and improve equitable access to these measures by leveraging innovative solutions such as digital health, medical devices, active pharmaceutical ingredients and drug development, and genomic medicine.

TIA will work with the DSTI to develop a comprehensive implementation plan for the Vaccine Innovation and Manufacturing Strategy. In the immediate future, TIA will engage with partners such as Biovac to outline specific actions for investments in priority vaccine candidates.

The TIA aims to harness South Africa's rich biodiversity and IK in order to promote the mainstream adoption of African traditional medicines. This initiative will also focus on the development of cosmeceuticals and health-enhancing products that contribute to the overall well-being of society at large.

By developing and commercialising IK-rooted health innovation response systems, the TIA aims to advance its investment efforts by strengthening its support of product optimisation and by conducting clinical trials in the five key priority areas that are identified in the Decadal Plan on STI, namely, HIV/AIDS, diabetes, cancer, tuberculosis, and emerging and re-emerging conditions such as COVID-19. In addition, the Agency intends to support the development of IK-based cosmeceuticals with scientifically proven claims for the treatment of a variety of skin conditions. The Agency will leverage South Africa's biomanufacturing capabilities to facilitate the development of products that respond positively to the country's healthcare challenges.

In addition, the TIA will foster collaboration with diverse stakeholders to pool resources aimed at innovation and the ongoing evolution of a responsive regulatory environment. This approach aims to accelerate the adoption of technologies that drive meaningful impacts.

Indigenous Knowledge Systems

The IKS strategic focus area intends to advance technology development and the commercialisation of bio-innovations rooted in IK. This mandate is strategically implemented across four key thematic areas: African traditional medicine, cosmeceuticals, health infusions and nutraceuticals. The TIA aims to enhance the lives of ordinary people residing in South Africa's rural areas and also those of other custodians of IK. By developing and commercialising technological innovations derived from ancient IK, this initiative ensures that benefits are shared with these communities, most of whom are situated in rural areas.

Industrial Biotechnology

The TIA's Industrial Biotechnology strategic focus area aims to advance the development and commercialisation of technologies that foster a green economy and promote environmental sustainability. Key areas of intervention include enhancing bio-manufacturing capabilities, establishing partnerships that facilitate the dissemination of green technologies and supporting the creation of SMMEs to generate sustainable jobs. These strategic interventions contribute to South Africa's broader industrialisation strategy and policy.

Seed Fund

The Seed Fund Programme has been set up with the express purpose of providing de-risking funding that helps innovators (e.g., university-based researchers and SMMEs) to obtain risk-adjusted funding. Such funding enables them to translate their research outputs into fundable ideas for further development and commercialisation. The programme achieves this by partnering with universities and science councils through their Offices of Technology Transfer and also with incubators and regional development agencies to obtain funding and support. The programme aims to contribute to this outcome by providing the de-risking funding and supporting early-stage projects, most especially focusing on publicly funded IP for developing knowledge innovation products.

To promote the imperatives of inclusivity and transformation (both demographic and spatial), the TIA will set aside dedicated funds from the MTEF to be directed at previously marginalised communities. In this regard, the Agency will provide seed funding and seek partnerships with industry and government departments to launch individual programmes for youths, women and persons with disabilities. The Agency will also identify partnership opportunities to help scale up the individual programmes in the Innovation for Inclusive Development portfolio currently managed on behalf of the DSTI.

Energy Sustainability and Environmental Innovation

South Africa relies heavily on fossil fuels and coal for electricity, which leads to significant greenhouse gas emissions and air pollution. Transitioning to renewable energy sources is essential to improving energy security, reducing environmental impact and creating new economic opportunities. The country also faces significant challenges in managing its industrial and domestic wastewater streams. Investing in environmental innovation is crucial to resolving these challenges. This includes developing technologies to convert wastewater into value-added products such as bio-energy, biomaterials, and biochemicals. Such innovations will contribute to the creation of economic opportunities and improvements in the quality of life.

12.4 Resource considerations

Table 10: Outcomes 1 expenditure estimates

	2025/26 (R'000)	2026/27 (R'000)	2027/28 (R'000)
Income	**310 238**	**331 830**	**423 666**
MTEF ring-fenced	184 430	195 170	205 319
MTEF baseline	91 808	96 660	141 704
Other income (specific contracts, interest and royalties)	34 000	40 000	76 643
Operational expenditure	**84 389**	**79 409**	**84 735**
Support and infrastructure costs	22 494	19 599	20 618
Human resources	61 895	59 810	64 117
Investment expenditure	**225 848**	**252 421**	**338 931**
MTEF allocation	166 283	193 396	234 006
Specific contracts	59 565	59 025	104 925

13. Enabling and strengthening the innovation ecosystem

13.1 Outcome 2: Enabling and strengthening the innovation ecosystem

Impact statement

The TIA aims to create a conducive innovation ecosystem that stimulates and supports innovation.

Outcome statement

The TIA is responsible for the development and implementation of instruments that create an enabling environment for innovation through a whole-of-society approach which supports a coherent and inclusive NSI. The Agency seeks to strengthen its curatorship role in the NSI by ensuring that the system is optimised for efficiency.

The Quadruple Helix Model approach to innovation will be implemented to bolster this role. This model recognises four major factors in the innovation system: science, policy, industry and society. The TIA seeks to develop an innovation compact, strengthening traditional higher education institution and science council relationships, along with measures to build partnerships across the economy and support previously unsupported innovators. To track the Agency's progress towards achieving Outcome 2 during the 2025–2030 Strategic Plan period, the Agency will report on the number of SMMEs receiving SET support that are sustainable.

13.2 Planned outputs and output targets

To strengthen and create an enabling innovation ecosystem, the TIA has developed eleven outputs with the purpose strengthening and creating a conducive innovation eco-system, three of which are outlined below.

First, the TIA will establish new technology and innovation support centres with the purpose of providing SET support to businesses and individuals in targeted regions. Second, the Agency will support the provision of SET and enterprise development support to SMMEs and co-operatives for the purposes of developing innovative products or services, which will improve their revenue, growth and competitiveness.

Third, the TIA will track the funds received from third parties for investment initiatives for the purposes of funding technology development, technology commercialisation and related support activities. This measure will demonstrate the Agency's relevance in the NSI by leveraging its own funding along with co-funding from industry, development finance institutions and organisations in the public sector.

The TIA will also increase the impact of the existing Technology Platforms across the country which offer high-end bio-based SET support to the biotech community. In addition, it will exploit emerging opportunities in strategic industries to establish new Technology Platforms. The Agency will also support several Technology Innovation Clusters in implementing collaborative innovation projects and activities in support of targeted bio-based industries.

In strengthening its curatorship role, the TIA will establish thematic networks that will yield Strategic Innovation Programmes aligned to the Decadal Plan priorities. These Strategic Innovation Programmes will be a collaborative effort between the Agency and stakeholders in the innovation ecosystem. These partnerships will be based on the sharing of similar objectives. The Agency seeks to implement the Small Business Research & Innovation Programme (SBRI), an instrument that will be deployed to promote the use of locally developed technologies to overcome service delivery challenges. Funds will therefore be leveraged in support of this programme. The Agency will create strategic partnership platforms that will enable beneficiaries including SMMEs and entrepreneurs to access skills through capacity building and technology innovation support. Lastly the Agency will measure the number of new start-ups and spinouts that are created as a result of support received from the fund of funds instrument.

The TIA's output targets in support of delivering on enabling and strengthening the innovation ecosystem are presented in Tables 11 and 12.

Table 11: Outcome 2 outputs, performance indicators and targets

Outputs	Output indicators	Audited actual performance			Estimated performance	MTEF period targets		
		2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
2.1 Leveraged funds	Total rand value leveraged	R746.5m	R600.9m	R686.85m	R310m	R320m	R325m	R340m
2.2 Collaborations in support of a strengthened NSI	Number of new SIPs developed	New indicator	New indicator	New indicator	New indicator	1	2	2
2.3 Initiatives to promote public spend towards innovation	Number of government departments and State Owned Enterprises participating in the SBRI programme	New indicator	New indicator	New indicator	New indicator	5	8	10
2.4 Initiatives to harmonise and streamline innovation funding and processes from Development Finance Institutions	Number of partnerships established	New indicator	New indicator	New indicator	New indicator	2	3	3
2.5 Promoting SA as an innovation investment destination	Host annual SA Innovation Week	New indicator	New indicator	New indicator	New indicator	1	1	1
2.6 Thought leadership publications on the SA innovation ecosystem	Publications on Innovation topics	New indicator	New indicator	New indicator	New indicator	3	4	4
2.7 New centres established and supported	Number of new technology and innovation support centres providing SET support in targeted regions	3	8	9	9	2	4	6

Table 11: Outcome 2 outputs, performance indicators and targets (continued)

Outputs	Output indicators	Audited actual performance			Estimated performance	MTEF period targets		
		2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
2.8 SET and enterprise development support provided to SMMEs and co-operatives	Number of SMMEs and co-operatives receiving SET and enterprise development support	3 167	2 903	3 537	3 100	3 600	4 000	5 000
2.9 Support to grassroots innovators	Number of grassroots innovators supported	New indicator	New indicator	New indicator	New indicator	100	150	200
2.10 Partnership for skills and innovation management	Number of beneficiaries accessing support from partnerships established with SETAs, private sector, government and civil society	New indicator	New indicator	New indicator	New indicator	2 000	3 000	4 000
2.11 New fund managers established	Number of black or women fund managers established	New indicator	New indicator	New indicator	New indicator	2	3	4
2.12 Number of start-ups and spinouts from Fund-of-Funds	Number of start-ups and spinouts established through fund managers	New indicator	New indicator	New indicator	New indicator	5	10	15

Table 12: Outcome 2 output indicators and annual and quarterly targets (2025/26)

Output indicators	Annual target	Q1	Q2	Q3	Q4
2.1 Total rand value leveraged	R320m	R55m	R80m	R90m	R95m
2.2 Number of new SIPs developed	1	–	–	–	1
2.3 Number of government departments and State Owned Enterprises participating in the SBRI	5	–	–	2	3
2.4 Number of partnerships established	2	–	–	1	1
2.5 Host annual SA Innovation Week	1	–	–	–	1
2.6 Publications on Innovation topics	3	–	–	–	3
2.7 Number of new technology and innovation support centres providing SET support in targeted regions	2	–	1	–	1
2.8 Number of SMMEs and co-operatives receiving SET and enterprise development support	3 600	500	800	1 100	1 200
2.9 Number of grassroots Innovators supported	100	-	20	30	50
2.10 Number of beneficiaries accessing support from partnerships established with SETAs, private sector, government and civil society	2 000	–	300	1 000	700
2.11 Number of black or women fund managers established	2	-	-	-	2
2.12 Number of start-ups and spinouts established through fund managers	5	-	-	-	5

13.3 Explanation of planned performance

The TIA's Technology Platform Programme is designed to provide funding and support to enhance access for stakeholders across various value chains to essential infrastructure and related technologies. The programme will also enable technology development and innovation as part of implementing the Bio-economy Strategy. The Agency is implementing this programme in order (1) to intervene systematically to remedy technology gaps in priority sectors that hinder the development and commercialisation of innovations, (2) to build the critical mass of local expertise with a view to promoting the development of technologies that have commercial potential, and (3) to foster collaboration among industry partners for pre-competitive technology development.

The Technology Innovation Cluster Programme aims to support technology development by adopting a value chain approach and catalysing collaborations among value-chain players such as public research institutions, entrepreneurs, businesses, suppliers and manufacturers that are both competing and co-operating in an industry. This partnership approach is aimed at facilitating an environment in which technology innovation and commercialisation can be promoted. The programme's goals are to enable the creation and expansion of local manufacturing and/or production capacity, support emerging markets and revitalise those industries in distress.

Several initiatives will be implemented to strengthen the STI system. These include:

- Public awareness and engagement: Establishing centres and satellites to increase SET at Technical Vocational Education and Training (TVET) colleges that are easily accessible to communities and citizens, enabling them to participate in workshops, conferences and forums.
- Funding and investment: Leveraging additional income from private-sector investment and government pension fund contributions in STI.
- Platforms that encourage collaboration: Building networks annually of innovators, SMMEs, entrepreneurs and many other industry players.

The TIA has a strong network of implementation partners that are instrumental in contributing to industry and to the innovation and infrastructure required in a knowledge-based economy. This will include developing technologies for sustainable agriculture and modernised ways of manufacturing in selected sectors. Collaborations include a variety of stakeholders, such as government agencies, private businesses and academic institutions. The network of Agency-affiliated intermediaries and partners will be consolidated, grown and scaled up to build an enabling environment for implementing renewable energy technologies, promoting energy-efficiency measures in businesses and supporting research on adaptation strategies for emerging enterprises.

The core themes of innovation, responsible development and ensuring broad societal benefits will remain crucial to the Agency's support and curation in navigating the disruption potential of new technologies. Governments around the world see enormous potential for disruption across industries in nanotechnology, additive manufacturing, big-data simulation, machine learning and AI. The Agency's initiatives will actively be shaping the development and applications of these disruptive technologies.

The TIA has a crucial role to play in innovation enablement by investing in applied R&D, also by lobbying for grant funding to accelerate the development and adoption of new disruptive technologies. The Agency aims to continue to supplement its income so as to attract and retain skilled staff by providing competitive salaries and enhancing opportunities for research collaboration. It will also facilitate co-investment in capital infrastructure projects for the upgrading of laboratories, workshops and technology resources at universities and TVET colleges. This drive is considered crucial to providing students with the necessary tools for learning and innovation that can be co-located between institutions and selected small firms.

The TIA aims to be actively involved in policy platforms that promote a conducive innovation-enabling environment. Policy briefs will be used as means to influence the improvement of the NSI. Government policy has the ability to either stifle or stimulate the NSI; it is therefore critical that the Agency both informs and is actively engaged with government institutions. This will entail informing regulations and standards to ensure the responsible deployment and use of new technologies; furthermore, dealing with issues such as safety, privacy and environmental impact will be at the forefront of the Agency's activities.

Education and skills development will be enhanced by digitalising tailored accredited short learning programmes. These will be piloted in support of TVET colleges and universities and should lead to the expansion and the accessing of high-end skills, the promotion of apprenticeship programmes and the enhancement of the "train the trainer" programme in technology integration for skills for the future. Both undergraduate and post-doctoral students will be funded or co-funded through TIA programmes aimed at increasing competitiveness and new industry development while creating career development pathways for scientists and engineers. The TIA will also enhance skills development initiatives that promote innovation and enterprise development:

- Work-integrated learning: The Agency will work towards incorporating internships, graduate training and other opportunities into academic programmes. This will enable both interns and graduates to gain practical experience at and build connections with potential employers.
- Strengthening technical and vocational skills: TVET graduates must be equipped with the necessary technical and vocational skills that are relevant to industry requirements. This should include hands-on training in machinery operation, construction techniques and software applications

An important part of TIAs curatorship role will be to provide though leadership on innovation. In this regard, the organisation will produce research reports and policy briefs on current innovation trends, emerging technologies, and recommendations for policy improvement. These publications will include insights into global and national innovation trends, benchmarking, and case studies to guide future innovation activities. In the medium term, TIA will gear itself to publish an annual SA Innovation Index that will serve as an informative tool on the state of innovation in SA and serving as key resource for investors looking for opportunities in the country. South Africa's assumption of the G20 presidency in 2025 will present a good opportunity to showcase successful local innovations to the world community while also offering a platform for G20 countries to showcase their innovations, which could serve to project a positive image of the country as a hub for innovation in Africa.

As with similar Innovation entities around the world, TIA will collaborate with the DSTI in the conceptualisation and launching of the Inaugural SA Innovation Week. This will serve as a magnet for international investors to seek investable innovation opportunities in South Africa. In this, TIA will build on its track record of showcasing successful innovations through various events both locally and Internationally such as the Bio Convention (US), SA Innovation Summit, Africa Arena and other sector specific events and conferences.

TIA will establish the Innovation Fund Office as an initiative to implement its Fund-of-Funds Programme. This will build on the Innovation Fund established by the DSTI and use this as an mechanism to grow the portfolio of fund managers in the country, whilst driving transformation through the establishment of black and women owned fund managers. The specific focus for the year will be to implement a Fund Manager Development Programme aimed at empowering and capacitating potential fund principals who wish to launch independent Funds. Through this approach, the organisation will accelerate the rate of start-up and spinoff creation from various sectors aligned to the Decadal Plan.

13.4 Resource considerations

Table 13: Outcome 2 expenditure estimates

	2025/26 (R'000)	2026/27 (R'000)	2027/28 (R'000)
Income	**228 145**	**243 839**	**322 342**
MTEF ring-fenced	51 160	53 503	56 285
MTEF baseline	45 168	55 768	17 756
Other income (specific contracts, interest and royalties)	131 817	134 568	248 301
Operational expenditure	**36 535**	**37 668**	**40 273**
Support and infrastructure costs	5 360	5 360	5 639
Human resources	31 175	32 308	34 634
Investment expenditure	**191 610**	**206 171**	**282 069**
MTEF allocation	130 418	142 185	181 684
Specific contracts	61 192	63 986	100 385

14. A more capable, scaled-up, agile and sustainable TIA supporting a capable state

Outcome 3 will focus on capacitating the TIA towards efficiency and increased impact. The broad framework developed towards TIA 2.0 informs this outcome. The roadmap towards TIA 2.0 involves moving through three phases: Consolidate, Grow and Scale. The Consolidate phase is aimed at capacitating the Agency optimally towards growth and ultimately becoming self-sustaining and less dependent on the fiscus. This outcome also seeks to support the state in becoming more efficient by developing innovations that improve service delivery and enhance the state's capacity.

14.1 Outcome 3: A more capable, scaled-up, agile and sustainable TIA supporting a capable state

Outcome 3 seeks to provide an effective and efficient enabling environment in which the TIA is able to realise its strategies by providing systems, processes and people and by prioritising appropriate resources (human and financial) in accordance with good corporate governance, legislative requirements and risk management practices. This outcome also seeks to help the government establish a developmental and capable state by deploying cutting-edge innovations in government departments with the aim of improving their service delivery to citizens. The Agency aims to deliver the outputs presented in Table 14 and 15.

14.2 Planned Outputs and Output targets

First, the TIA will strengthen its internal control environment to prevent adverse audit findings: adequate management of financial and performance information is required for it to attain positive audit outcomes. Second, the TIA 2.0 strategy requires the Agency's organisational structure to be transformed, a process that will require the upskilling of its personnel and the filling of vacant positions if optimal organisational performance is to be attained. The Agency's plans to scale up its performance and increase its impact require it to be properly capacitated.

Moreover, the Consolidate phase of the broad TIA 2.0 framework requires the TIA to "fix" its ecosystem failures in order to build a sound base for the Grow phase. Efficient turnaround times for investment decisions are critical to this process as they will enable overall efficiency in the Agency.

The revenue generated from royalties and exits, together with the total rand value managed from partnerships, is a measure of the Agency's drive towards sustainability: this it will demonstrate by making profitable investments and being able to leverage funding from sources that share similar objectives.

Table 14: Outcome 3 outputs, performance indicators and targets

Outputs	Output indicators	Audited actual performance			Estimated performance	MTEF period targets		
		2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
3.1 Improved institutional capacitation towards supporting delivery of TIA 2.0	Percentage of approved funded positions filled annually	New indicator	New indicator	New indicator	New indicator	85%	90%	95%
3.2 Improved investment decision turnaround time for funding applications[1]	(a) Investment decision turnaround time for funding applications <R1m	Target not met	Target not met (48 out of 93 applications assessed within four weeks or 52%)	Target not met (16 out of 37 applications assessed within 4 weeks or 43%)	Achieve a 4-week turnaround time	70% of applications assessed within 12 weeks	75% of applications assessed within 12 weeks	80% of applications assessed within 12 weeks
	(b) Investment decision turnaround time for funding applications >R1m and <R15m	Target not met	Target not met (89 out of 107 applications assessed within 15 weeks or 83%)	Target not met (19 out of 33 applications assessed within 15 weeks or 58%)	Achieve a 15-week turnaround time	70% of applications assessed within 15 weeks	75% of applications assessed within 15 weeks	80% of applications assessed within 15 weeks
	(c) Investment decision turnaround time for funding applications >R15m	Target not met	Target met (2 out of 2 applications assessed within 26 weeks or 100%)	Target met (1 out of 1 application assessed within 26 weeks or 100%)	Achieve a 26-week turnaround time	70% of applications assessed within 26 weeks	75% of applications assessed within 26 weeks	80% of applications assessed within 26 weeks
3.3 Income raised to reduce reliance on MTEF	Total rand value of royalties, sales and exits from commercialised innovations	New indicator	New indicator	R43.92m	R15m	R20m	R25m	R35m
3.4 Income raised to reduce reliance on MTEF	Total rand value managed from partnerships	New indicator	New indicator	New indicator	New indicator	R300m	R400m	R400m

[1] *The time frame in each target reflects the time taken at the TIA in line with its assessment and approval processes and does not include the time that potential applicants may spend in developing and refining their applications.*

Outputs	Output indicators	Audited actual performance			Estimated performance	MTEF period targets		
		2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
3.5 Measures introduced towards digital transformation and business optimisation	Number of new business processes optimised and digitised	New indicator	New indicator	New indicator	New indicator	3	4	4
3.6 Innovations in support of a capable state	Number of innovations that improve operations in government departments	New indicator	New indicator	New indicator	New indicator	–	1	2
3.7 Innovations in support of a capable state	Number of innovations that improve service delivery	New indicator	New indicator	New indicator	New indicator	10	15	20
3.8 A positive TIA brand	Increased TIA brand equity	New indicator	New indicator	New indicator	New indicator	Brand awareness level averaging between 8 and 10	Brand awareness level averaging between 8 and 10	Brand awareness level averaging between 8 and 10

Table 15: Administration output indicators and annual and quarterly targets (2025/26)

Output indicators	Annual target	Q1	Q2	Q3	Q4
3.1 Percentage of approved funded positions filled annually	85%	No target	No target	No target	85%
3.2 (a) Investment decision turnaround time for funding applications <R1m	70% of applications assessed within 12 weeks	No target	70% of applications assessed within 12 weeks	No target	70% of applications assessed within 12 weeks
3.2 (b) Investment decision turnaround time for funding applications >R1m and <R15m	70% of applications assessed within 15 weeks	No target	70% of applications assessed within 15 weeks	No target	70% of applications assessed within 15 weeks
3.2 (c) Investment decision turnaround time for funding applications >R15m	70% of applications assessed within 26 weeks	No target	70% of applications assessed within 26 weeks	No target	70% of applications assessed within 26 weeks
3.3 Total rand value of royalties, sales and exits	R20m	No target	R5 million	No target	R15m
3.4 Total rand value managed from partnerships	R300m	No target	R50m	No target	R250m
3.5 Number of new business processes optimised and digitalised	3	No target	No target	No target	3
3.6 Number of innovations that improve operations in government departments	-	No target	No target	No target	No target
3.7 Number of innovations that improve service delivery	10	No target	No target	4	6
3.8 Increased TIA brand equity	Brand awareness level averaging between 8 and 10	-	-	-	Brand awareness level averaging between 8 and 10

14.3 Explanation of planned performance

The TIA will pursue the realisation of the set objectives under Outcome 3 through several specific interventions. Through the implementation of the TIA 2.0 strategy aimed at the recalibration of the Agency towards greater efficiency, the organisation will be capacitated through the sourcing of new skills and the upskilling of existing employees. The process of developing a new organisational structure that recognises the skills and expertise needed to take the organisation forward is currently being finalised. Once the new organisational design has been approved, the Agency will be tasked with the responsibility of ensuring that all the vacant funded positions are filled. The filling of these positions will place the organisation in a position of achieving its objectives.

The TIA's scaling and sustainability drive is aimed at ensuring that the organisation reduces its reliance on the MTEF. The Agency will raise funding in the first instance through establishing partnerships with various players sharing similar objectives in the NSI. The amount of funds derived from commercialised innovations includes the tracking of royalty payments, revenue generated through the sales of TIA-supported products, processes and services, and redemptions from exits is the second mechanism the Agency will use to raise funding. Reducing reliance on fiscal allocations will signify that the organisation is self-reliant and is operating at a level in which its investments and programmes have a substantial impact on the country's socioeconomic landscape.

The Agency's emphasis will be on the audit outcomes of the TIA's investments, which will be aimed at promoting the efficient use of public funds in line with the prescripts of the PFMA and financial accountability. The Agency will continue to promote the use of the investment onboarding toolkit by new investees. This focus will also include an audit of the TIA programmes, including hosted programmes to ensure their alignment with TIA policies and the PFMA.

The TIA will put additional measures in place to promote improved turnaround time for decision-making, building on the gains from the previous financial year. New approaches will be incorporated, including utilisation of experts and automation through the Enterprise Resource Management System which has earnestly begun. TIA has also re-examined its historical data pertaining to turnaround time and has amended its targets accordingly based on actual achievements.

Promoting a positive TIA brand equity in the NSI, requires the organisation to implement intentional measures to build trust with stakeholders, whilst building increased awareness of its offerings and highlighting the impact it generates for society through its mandate. TIA has developed a comprehensive Strategic Stakeholder Engagement Framework that is underpinned by a Marketing and Communication Strategy. These set out various initiatives that are intended strengthen the agency's brand presence in the market, whilst strengthening engagement with stakeholders. TIA will measure its performance against this outcome through purposefully designed annual customer surveys as they most reliable and independent source of market perception of TIA. The results from the survey will assist in ensuring relevance through constant improvements.

Other additional measures that will be improved upon include the following specific initiatives:

- Implementing a pre-investment application building instrument that will improve the quality of applications to ensure the smooth and efficient processing of applications.
- Introducing a deal team approach to due diligence and investment assessment, thus minimising the time lag between the various due diligence components (legal, finance, IP, technical and commercial).
- Expanding the current database of external experts and increasing its adoption internally.
- Implementing a Post-Investment Management Structure as part of the organisational realignment towards TIA 2.0, enabling a clear segregation of duties among portfolio managers.
- Increasing the use of the existing Enterprise Resource Management System and expanding the system to the growing pool of TIA-funded stakeholders.

14.4 Resource considerations

Table 16: Outcome 3 expenditure estimates

	2025/26 (R'000)	2026/27 (R'000)	2027/28 (R'000)
Income	**60 979**	**71 759**	**76 382**
MTEF ring-fenced	–	–	–
MTEF baseline	47 479	57 654	61 544
Other income (specific contracts, interest and royalties)	13 500	14 105	14 838
Operational expenditure	**60 979**	**71 759**	**76 382**
Support and infrastructure costs	23 223	27 163	28 575
Human resources	37 756	44 596	47 807

15. Institutional resource considerations

Operational costs

Support and infrastructure cost allocations have been prepared using a zero-based budgeting process that focuses on improving the efficiency ratio in the TIA through cost-saving initiatives. Human resource costs have been budgeted for based on the filling of key vacancies. A continuing focus remains on improving the efficiency ratio. In line with the National Treasury spending review recommendations, approximately only 10% of funding has been directed towards operational costs.

Investment funding

Given the current economic conditions, investment funding remains a challenge as applications for funding far exceed the funding available. This is mitigated to some extent by leveraging funds for projects from other parties, including the co-funding of projects.

Other income

Funding is an important factor that enables the TIA to enhance its de-risking role as the primary funder of early-stage technology innovations in the NSI. To this end, the Agency pursues strategies that strengthen its funding base, especially under the current constrained fiscal conditions. The Agency has shown that it has the ability to implement specific programmes adequately. As a result, it has seen an increase in the number and value of specific contracts with the DSTI.

The TIA will continue to focus on obtaining other sources of income to support its programmes and project funding initiatives, including remedying the significant underfunding of its commercialisation mandate. This will be done through contract-specific funds obtained from the DSTI, including the Innovation Fund, and also from other government institutions and through partnerships with the public and private sectors (using the Hub and Spoke model).

Maturing technology development projects are expected to yield financial returns in the form of royalties, loan repayments and other forms of commercialisation support. With effective working capital management, the Agency aims to maximise the interest earned on cash reserves deposited with the Corporation for Public Deposits at the South African Reserve Bank. The returns generated will be used to fund innovation initiatives.

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Table 17: TIA budget allocation for the MTEF period 2025/26 to 2027/28

	Budget 2025/26 R'000	Budget 2026/27 R'000	Budget 2027/28 R'000
Administration	**181 904**	**188 836**	**201 390**
Support and infrastructure cost	51 077	52 122	54 833
Human resources	130 827	136 714	146 557
Investments	**417 458**	**458 591**	**670 153**
Bio-economy	**158 183**	**173 029**	**235 790**
Technology Stations	**96 735**	**99 110**	**103 901**
Commercialisation	**82 921**	**96 554**	**141 574**
Innovation Enabling	**79 619**	**89 898**	**188 888**
Total Expenditure	599 362	647 427	871 543
Total funding received	**599 362**	**647 427**	**871 542**
Allocation from DSTI	420 045	458 754	531 760
Baseline (other than Bio-economy and Technology Stations)	184 455	210 081	219 581
Bio-economy	184 430	195 170	256 257
Technology Stations	51 160	53 503	55 922
Additional income target	131 817	134 568	288 301
Other income	34 000	40 000	36 643
Interest	13 500	14 105	14 838
Surplus (deficit)	-	-	-
Capex allocation:	15 000	12 000	8 000

16. Updated key risks and mitigation from Strategic Plan

Stemming from the Strategic Plan, the TIA employs a robust, systematic process at both the operational and the strategic level. This process is integrated into and central to its strategic planning process. The methodology applied is derived from the prescripts of the Committee of Sponsoring Organisations of the Treadway Commission: Enterprise Risk Management Integrated Framework, ISO31000 Risk Management, the National Treasury's Public Sector Risk Management Framework, the Institute of Risk Management South Africa's risk principles and the TIA's own Enterprise Risk Management Policy. The Agency manages its risks at the strategic, operational and project levels.

Table 18 outlines the key risks relating to the TIA's outcomes, together with identified risk-mitigation measures.

Table 18: Strategic risks and mitigation plans (2025–2030)

Outcome	Key risk	Risk mitigation
Intensified commercialised innovations	Inadequate internal commercialisation capacity and capability	Leverage implementing partner model and expand the external experts database to enhance and supplement internal capacity and capabilities
	Low market uptake of and access to funded innovations	Build and develop investment portfolio and technologies in partnerships with industry (market-led investment strategy)
	Insufficient support tools for commercialisation	Develop and implement comprehensive support tools to facilitate the commercialisation process
	Lack follow-on funding for entities may prevent them from advancing to the commercialisation stage	Develop and pilot a Venture Builder business model
Enabling and strengthening of the innovation ecosystem	Lack of acceptance and recognition of the TIA's role by stakeholders in the innovation ecosystems	Foster robust and collaborative relationships with key stakeholders and partners. Revise the TIA's branding and marking strategy
	Lack of capacity to drive thought leadership	Build business intelligence capabilities in the TIA
	Insufficient transformation and inclusivity	Launch Transformation Programmes on Youths, Women and Persons with Disabilities.
A more capable, scaled-up, agile and sustainable TIA	Demand for technology development funding emanating from the investment pipeline may exceed available funding resources available (financial sustainability)	Enhanced revenue and funding model that drives the viability and sustainability of the TIA.
	Organisational design may not support the delivery of the strategy	Review the operating model and organisational design and implement necessary measures Use database of external experts
	Inability to deliver services in an agile and effective manner	Leverage artificial intelligence, digitalisation and automation to enhance the delivery of services, ensuring the TIA operates with greater agility and effectiveness

PART D

TECHNICAL INDICATOR DESCRIPTIONS

Outcome 1: Intensified commercialised innovations in support of inclusive economic growth, sustainable development and transformations

Indicator title	1.1 Number of projects involving industry being executed
Definition	Number of collaborative projects or businesses, or initiatives or programmes with the private sector in developing and/or commercialising the technology. The collaboration can be either financial or non-financial. The joint collaborations may involve publicly funded research organisations (inclusive of publicly funded higher education institutions and science councils), government, civil society and industry.
Source of data	Programme or project databases Reports Contracts or agreements
Method of calculation	Simple count
Means of verification	Verification of supporting documentation
Assumptions	Projects or businesses, or initiatives or programmes, have existing or new partnerships with the private sector
Disaggregation of beneficiaries	Women: ≥30% Youth: ≥20% Persons with disabilities: ≥10%
Spatial transformation (DDM)	To be informed by and aligned with the priorities of the government's 2024–2029 MTDP, in support of the DSTI
Calculation type	Cumulative
Reporting cycle	Quarterly
Desired performance	To meet or exceed the target set
Indicator responsibility	All core Executive

Indicator title	1.2 Number of successfully diffused technologies
Definition	Number of technologies that have been introduced into the market (community structures, SMMEs, co-operatives and other business formations) for social gain, directly or indirectly (products, processes or services).
Source of data	Programme or project databases Reports Contracts or agreements Invoices Testimonies Publications
Method of calculation	Simple count
Means of verification	Verification of supporting documentation
Assumptions	Availability and approval of funding Innovation outputs developed successfully to demonstration stage (or higher) where there is a market for social diffusion A diffused technology can be counted more than once only if a derivative, modified or customised version of the original technology is diffused
Disaggregation of beneficiaries	Women: ≥30% Youth: ≥20% Persons with disabilities: ≥10%
Spatial transformation (DDM)	To be informed by and aligned with the priorities of the government's 2024–2029 MTDP, in support of the DSTI
Calculation type	Cumulative
Reporting cycle	Quarterly
Desired performance	To meet or exceed the target set
Indicator responsibility	Executive: Commercialisation

Indicator title	1.3 Number of products launched
Definition	The number of products that have been successfully launched in the market by entrepreneurs start-ups or SMMEs
Source of data	Programme or project databases Reports Contracts or agreements
Method of calculation	Simple count
Means of verification	Verification of supporting documentation
Assumptions	The product is fully developed and ready for market entry A product launched can be counted more than once only if a derivative modified or customised version of the original product is launched
Disaggregation of beneficiaries	Women: ≥30% Youth: ≥20% Persons with disabilities: ≥10%
Spatial transformation (DDM)	To be informed by and aligned with the priorities of government's 2024–2029 MTDP, in support of the DSTI
Calculation type	Cumulative
Reporting cycle	Quarterly
Desired performance	To meet or exceed the target set
Indicator responsibility	Executive: Commercialisation

Indicator title	1.4 Number of successfully demonstrated bio-based technologies
Definition	Bio-based technologies, products or services that have reached demonstration stage in agriculture, health, industrial biotechnology, IKS and other bio-based domains. Bio-based refers to a technological application that uses biological systems, living organisms or derivatives of them to make or modify products or processes. This includes diagnostic kits, bio-processes, technology packages and allied
Source of data	Programme or project databases Reports Contracts or agreements
Method of calculation	Simple count
Means of verification	Verification of supporting documentation
Assumptions	Availability and approval of funding
Disaggregation of beneficiaries	Women: ≥30% Youth: ≥20% Persons with disabilities: ≥10%
Spatial transformation (DDM)	To be informed by and aligned with the priorities of the government's 2024–2029 MTDP, in support of the DSTI
Calculation type	Cumulative
Reporting cycle	Quarterly
Desired performance	To meet or exceed the target set
Indicator responsibility	Executive: Bio-economy

Indicator title	1.5 Number of IP and knowledge-based innovation products produced
Definition	Knowledge or innovation product: the output (discrete intermediate steps or finalisation) of knowledge or innovation (process, market, product or improved service delivery) that is quantifiable (e.g. invention disclosure, patent, prototype, technology transfer package, technology demonstrator, plant-breeders' rights). It should be noted that different technologies and processes have slightly different phases, conventions and names.
Source of data	Programme or project databases Register of knowledge and innovation products Quotations or invoices (scope of work) Reports Acceptance of work/delivery note/project sign-off
Method of calculation	Simple count
Means of verification	Verification of supporting documentation
Assumptions	Researchers lodge their IP outputs through formal channels in the Office of Technology Transfer of the university or science council as per the Intellectual Property Rights Act. Publicly funded research organisations have existing frameworks to categorise the different types of knowledge-based product.
Disaggregation of beneficiaries	Historically disadvantaged individuals: ≥80% Women: ≥45% Youth: ≥40% Persons with disabilities: ≥3%
Spatial transformation (DDM)	To be informed by and aligned with the priorities of the government's 2024–2029 MTDP, in support of the DSTI
Calculation type	Cumulative
Reporting cycle	Quarterly
Desired performance	To meet or exceed the target set
Indicator responsibility	All core Executives

Indicator title	1.6 Allocation of funds to underserved provinces
Definition	Available investment funds directed to support innovation projects and initiatives in underserved provinces
Source of data	Programme or project databases Agreements or contracts
Method of calculation	Simple count of the value of signed agreements entered into with recipients (i.e. investees) in underserved provinces divided by (the total value of uncommitted funds at the beginning of the financial year minus total value of unspent funds at the end of the financial year) as a percentage Uncommitted funds exclude multi-year contractual commitments as part of agreements signed in previous years and also funds earmarked for deployment under existing programmes
Means of verification	Verification of supporting documentation
Assumptions	Availability of sufficient unspent and uncommitted funds as at 1 April 2025 Willing partners/funding recipients Funds are to be spent in underserved provinces
Disaggregation of beneficiaries	N/A
Spatial transformation (DDM)	Recipients or investees in the Northern Cape, Limpopo, Free State, Eastern Cape, North West and Mpumalanga provinces. Supports the DSTI's selected district and metropolitan municipalities (e.g., Ugu, Zululand and Ekurhuleni)
Calculation type	Cumulative
Reporting cycle	Annually in Q4
Desired performance	To meet or exceed the target set
Indicator responsibility	All core Executives

Indicator title	1.7 Allocation of funds to designated groups
Definition	Available investment funds directed to black recipients
Source of data	Programme or project databases Agreements or contracts
Method of calculation	Simple count of the value of signed agreements entered into with transformed or black recipients (i.e. investees) divided by (the total value of uncommitted funds at the beginning of the financial year minus total value of value of unspent funds at the end of the financial year) as a percentage Uncommitted funds exclude multi-year contractual commitments as part of agreements signed in previous years and also funds earmarked for deployment under existing programmes
Means of verification	Verification of supporting documentation
Assumptions	Availability of sufficient unspent and uncommitted funds as at 1 April 2025 Willing partners, funding recipients or investees
Disaggregation of beneficiaries	Black recipients with a minimum black ownership of 30%; or recipients or investees who are at B-BBEE Level 4 or better
Spatial transformation (DDM)	To be informed by and aligned with the priorities of the government's 2024–2029 MTDP, in support of the DSTI
Calculation type	Cumulative
Reporting cycle	Annually in Q4
Desired performance	To meet or exceed the target set
Indicator responsibility	All core Executives

Outcome 2: Enabling and strengthening of the innovation ecosystem

Indicator title	2.1 Total rand value leveraged
Definition	The amount of funds contributed by third parties to investment initiatives for the purposes of funding technology development, technology commercialisation and related support activities
Source of data	Programme or project databases Award letters Funding confirmation letters Contracts or agreements
Method of calculation	Simple count of the value of signed agreements entered into with third parties (TIA's co-investment with third parties, financial and/or follow-on funding)
Means of verification	Verification of supporting documentation
Assumptions	Third parties will continue to have available funds to spend on innovation
Disaggregation of beneficiaries	N/A
Spatial transformation (DDM)	To be informed by and aligned with the priorities of the government's 2024–2029 MTDP, in support of the DSTI
Calculation type	Cumulative
Reporting cycle	Quarterly
Desired performance	To meet or exceed the target set
Indicator responsibility	Executive: Commercialisation

Indicator title	2.2 Number of new Strategic Innovation Programmes developed
Definition	The development of new large scale, multi-year and multi-stakeholder collaborative innovation programmes
Source of data	Programme or project databases Reports Contracts or agreements
Method of calculation	Simple count
Means of verification	Verification of supporting documentation
Assumptions	Buy-in of external partners and internal TIA capabilities. Adequate funding and resources are made available (disbursement)
Disaggregation of beneficiaries	N/A
Spatial transformation (DDM)	To be informed by and aligned with the priorities of the government in support of the 2024–2029 MTDP DSTI
Calculation type	Cumulative
Reporting cycle	Annually in Q4
Desired performance	To meet or exceed the target set
Indicator responsibility	All core Executives

Indicator title	2.3 Number of government departments and State Owned Enterprises participating in the SBRI programme
Definition	Use of locally developed technologies to resolve service delivery challenges by government
Source of data	Programme or project databases Reports Contracts or agreements
Method of calculation	Simple count
Means of verification	Verification of supporting documentation
Assumptions	There are locally developed technologies that can resolve service delivery challenges
Disaggregation of beneficiaries	N/A
Spatial transformation (DDM)	To be informed by and aligned with the priorities of the government's 2024–2029 MTDP, in support of the DSTI
Calculation type	Cumulative
Reporting cycle	Q3 and Q4
Desired performance	To meet or exceed the target set
Indicator responsibility	Executive: Innovation Enabling

Indicator title	2.4 Number of partnerships established
Definition	Initiatives to harmonise and streamline innovation funding and processes from Development Finance Institutions. Partnerships that are created in support of the creation of thematic networks to drive strategic innovation programmes
Source of data	Programme or project databases Reports Contracts or agreements
Method of calculation	Simple count
Means of verification	Verification of supporting documentation
Assumptions	Adequate funding and resources are made available (disbursement) or obtained from third parties to assist with the funding and establishment of these initiatives
Disaggregation of beneficiaries	N/A
Spatial transformation (DDM)	To be informed by and aligned with the priorities of the government's 2024–2029 MTDP, in support of the DSTI
Calculation type	Cumulative
Reporting cycle	Q3 and Q4
Desired performance	To meet or exceed the target set
Indicator responsibility	All core Executives

Indicator title	2.5 Host annual SA Innovation Week
Definition	Promoting SA as an innovation investment destination
Source of data	Programme or project databases Reports Contracts or agreements
Method of calculation	Simple count
Means of verification	Verification of supporting documentation
Assumptions	Existence of internal TIA funding, expertise and human resources
Disaggregation of beneficiaries	N/A
Spatial transformation (DDM)	To be informed by and aligned with the priorities of the government's 2024–2029 MTDP, in support of the DSTI
Calculation type	Non-cumulative
Reporting cycle	Annually in Q4
Desired performance	To meet or exceed the target set
Indicator responsibility	All Executives

Indicator title	2.6 Publication of innovation topics
Definition	Thought leadership publications on the SA innovation ecosystem
Source of data	Programme or project databases Reports Contracts or agreements
Method of calculation	Simple count
Means of verification	Verification of supporting documentation
Assumptions	Existence of internal TIA research and intelligence capability, funding, expertise and human resources
Disaggregation of beneficiaries	N/A
Spatial transformation (DDM)	To be informed by and aligned with the priorities of the government's 2024–2029 MTDP, in support of the DSTI
Calculation type	Cumulative
Reporting cycle	Annually in Q4
Desired performance	To meet or exceed the target set
Indicator responsibility	All core Executives

Indicator title	2.7 Number of new technology and innovation support centres providing SET support in targeted regions
Definition	New centres established and supported
Source of data	Programme or project databases Reports Contracts or agreements
Method of calculation	Simple count
Means of verification	Verification of supporting documentation
Assumptions	Adequate funding and resources are made available (disbursement) or obtained from third parties to assist with the funding and establishment of such facilities Willing hosts, champions and shareholders (including the DSTI) commit and agree to the establishment of such facilities
Disaggregation of beneficiaries	N/A
Spatial transformation (DDM)	To be informed by and aligned with the priorities of the government's 2024–2029 MTDP, in support of the DSTI
Calculation type	Cumulative
Reporting cycle	Q2 and Q4
Desired performance	to meet or exceed the target set
Indicator responsibility	Executive: Innovation Enabling

Indicator title	2.8 Number of SMMEs and co-operatives receiving SET and enterprise development support
Definition	SET and enterprise development support provided to SMMEs and co-operatives
Source of data	Programme or project databases Reports Contracts or agreements
Method of calculation	Simple count
Means of verification	Verification of supporting documentation
Assumptions	An adequate number of SMMEs and co-operatives will be interested in the services offered by Technology Stations, possess adequate expertise and have access to adequate funding to provide and maintain the infrastructure required for SET support
Disaggregation of beneficiaries	Entrepreneurs who are historically disadvantaged individuals or businesses owned by historically disadvantaged individuals: ≥80% Women-owned businesses or women entrepreneurs: ≥45% Youth-owned businesses or youth entrepreneurs: ≥40% Entrepreneurs who are persons with disabilities or businesses owned by persons with disabilities: ≥3%
Spatial transformation (DDM)	To be informed by and aligned with the priorities of the government's 2024–2029 MTDP, in support of the DSTI
Calculation type	Cumulative
Reporting cycle	Quarterly
Desired performance	Meet or exceed the target
Indicator responsibility	Executive: Innovation Enabling

Indicator title	2.9 Number of grassroots innovators supported
Definition	Number of grassroots innovators accessing support through TIA's innovation infrastructure and entrepreneurship skills programmes
Source of data	Programme or project databases Reports Contracts or agreements
Method of calculation	Simple count
Means of verification	Verification of supporting documentation
Assumptions	Adequate funding and resources are made available (disbursement) or obtained from third parties to assist with the funding of beneficiaries
Disaggregation of beneficiaries	N/A
Spatial transformation (DDM)	To be informed by and aligned with the priorities of the government's 2024–2029 MTDP, in support of the DSTI
Calculation type	Cumulative
Reporting cycle	Quarterly
Desired performance	To meet or exceed the target set
Indicator responsibility	Executive: Innovation Enabling

Indicator title	2.10 Number of beneficiaries accessing support from partnerships established with SETAs, private sector, government and civil society
Definition	Partnership for capacity building, skills and innovation management by coordinating for the placement of SMMEs and entrepreneurs
Source of data	Programme or project databases Reports Contracts or agreements
Method of calculation	Simple count
Means of verification	Verification of supporting documentation
Assumptions	Adequate funding and resources are made available (disbursement) or obtained from third parties to assist with the funding of beneficiaries
Disaggregation of beneficiaries	Women: ≥30% Youth: ≥50% Persons with disabilities: ≥10%
Spatial transformation (DDM)	To be informed by and aligned with the priorities of the government's 2024–2029 MTDP, in support of the DSTI
Calculation type	Cumulative
Reporting cycle	Q3 and Q4
Desired performance	Beneficiaries benefit from established partnerships
Indicator responsibility	Executive: Innovation Enabling

Indicator title	2.11 Number of black or women fund managers established
Definition	Number of new fund managers that have been registered with the Financial Service Board
Source of data	Registration documents
Method of calculation	Simple count
Means of verification	Verification of supporting documentation
Assumptions	Adequate pipeline of potential Fund Principals and available funding to assist with the creation of new fund managers
Disaggregation of beneficiaries	Historically disadvantaged individuals: ≥100% Women: ≥50%
Spatial transformation (DDM)	To be informed by and aligned with the priorities of the government's 2024–2029 MTDP, in support of the DSTI
Calculation type	Cumulative
Reporting cycle	Annually in Q4
Desired performance	Meet or exceed the target
Indicator responsibility	Executive: Chief Investment Officer

Indicator title	2.12 Number of start-ups and spinouts established through fund managers
Definition	Number of start-ups and spinouts invested in by venture capital fund managers.
Source of data	Programme or project databases Reports Contracts or agreements
Method of calculation	Simple count
Means of verification	Verification of supporting documentation
Assumptions	Successful raising of capital by fund managers to support investment into underlying start-ups and spinouts.
Disaggregation of beneficiaries	N/A
Spatial transformation (DDM)	To be informed by and aligned with the priorities of the government's 2024–2029 MTDP, in support of the DSTI
Calculation type	Cumulative
Reporting cycle	Annually in Q4
Desired performance	Meet or exceed the target
Indicator responsibility	Executive: Innovation Enabling

Outcome 3: A more capable, scaled-up, agile and sustainable TIA supporting a capable state

Indicator title	3.1 Percentage of approved funded positions filled annually
Definition	The number of vacant funded positions in the approved organisational structure. This includes the tracking of filled positions in the organisational structure to ensure adequate capacitation
Source of data	Payroll
Method of calculation	Percentage of filled positions against total number of funded positions in the approved organisational structure
Means of verification	Verification of supporting documentation
Assumptions	New organisational structure approved
Disaggregation of beneficiaries	N/A
Spatial transformation (DDM)	N/A
Calculation type	Non-cumulative
Reporting cycle	Annually in Q4
Desired performance	To meet or exceed the target set
Indicator responsibility	Executive: Corporate Services

Indicator title	3.2 Investment decision turnaround time for funding applications
Definition	Investment decision turnaround time is measured as the time taken by the TIA to process and conclude funding applications, from receipt of a full funding application until when an investment decision is taken. The desired investment decision turnaround time is determined by the quantum of funding
Source of data	System-generated report or Excel spreadsheet with turnaround time calculations Date of receipt of a full funding application (e.g., system screen shot, emails) Date of investment decision, as per the delegation of authority Evidence of check-outs and check-ins when applicable
Method of calculation	(Number of full funding application assessment decisions concluded within the targeted turnaround time)/(Total number of full funding applications received) × 100%
Means of verification	Verification of supporting documentation
Assumptions	All transaction information is accurately recorded on the investment system. Open funding applications (where an investment decision has not yet been made) are excluded from calculations. The time taken by the applicant to respond to questions and to provide more information will be deducted from the total time taken for each individual application from receipt of a full application until when an investment decision is taken. Turnaround calculations shall straddle financial years, i.e applications received in a previous financial year but concluded in a later financial year shall be included
Disaggregation of beneficiaries	N/A
Spatial transformation (DDM)	N/A
Calculation type	Non-cumulative
Reporting cycle	Q2 and Q4
Desired performance	To meet or exceed the target set
Indicator responsibility	All core Executives

Indicator title	3.3 Total rand value of royalties, sales and exits
Definition	The amount of funds derived from commercialised innovations. This includes the tracking of royalty payments, revenue generated through the sales of TIA-supported products, processes and services, and redemptions from exits
Source of data	Programme or project databases/royalty register Invoices, statements, and GL/financials Contracts/awards or agreements/letters of intent Audited certificate of sales figures
Method of calculation	Simple count of the combined value of royalty payments, revenue generated through the sales of TIA-supported products, processes and services and redemptions from exits. Levy calculation against sales figures
Means of verification	Verification of supporting documentation
Assumptions	Third parties have available funds to spend on innovation; the ability to repay does not stifle the growth of the company/tech
Disaggregation of beneficiaries	N/A
Spatial transformation (DDM)	N/A
Calculation type	Cumulative
Reporting cycle	Q2 and Q4
Desired performance	To meet or exceed the target set
Indicator responsibility	Executive: Commercialisation

Indicator title	3.4 Total rand value managed from partnerships
Definition	Income raised to reduce reliance on MTEF. Partnerships formed in support of key thematic networks and the SBRI
Source of data	Programme or project databases/royalty register Invoices, statements and GL/financials Contracts/awards or agreements/letters of intent Audited certificate of sales figures
Method of calculation	Simple count of the combined value of funds pooled to fund TIA programmes and projects
Means of verification	Verification of supporting documentation
Assumptions	Partners have available funds to spend on innovation
Disaggregation of beneficiaries	N/A
Spatial transformation (DDM)	N/A
Calculation type	Cumulative
Reporting cycle	Q2 and Q4
Desired performance	To meet or exceed the target set
Indicator responsibility	Executive: Commercialisation

Indicator title	3.5 Number of new business processes digitalised
Definition	Digitalisation of business processes for improved efficiency
Source of data	Programme or project databases/royalty register Contracts/awards or agreements/letters of intent Audited certificate of sales figures
Method of calculation	Simple count of the number of business processes that are optimised and digitalised
Means of verification	Verification of supporting documentation
Assumptions	A sizeable number of business processes still need to be optimised and digitalised
Disaggregation of beneficiaries	N/A
Spatial transformation (DDM)	N/A
Calculation type	Cumulative
Reporting cycle	Annually in Q4
Desired performance	To meet or exceed the target set
Indicator responsibility	Executive: Corporate Services

Indicator title	3.6 Number of innovations that improve operations in government departments
Definition	Innovations in support of a capable state
Source of data	Contracts/awards or agreements/letters of intent
Method of calculation	Simple count of the innovations developed that support state capacity
Means of verification	Verification of supporting documentation
Assumptions	Government departments will support and participate in initiative
Disaggregation of beneficiaries	N/A
Spatial transformation (DDM)	N/A
Calculation type	Cumulative
Reporting cycle	Not measured in 2025/26
Desired performance	To meet or exceed the target set
Indicator responsibility	All core Executives

Indicator title	3.7 Number of innovations that improve service delivery
Definition	Innovations in support of a capable state
Source of data	Contracts/awards or agreements/letters of intent
Method of calculation	Simple count of the number of innovations that improve service delivery
Means of verification	Verification of supporting documentation
Assumptions	Third parties have available funds to spend on innovation; the ability to repay does not stifle the growth of the company/tech
Disaggregation of beneficiaries	N/A
Spatial transformation (DDM)	N/A
Calculation type	Cumulative
Reporting cycle	Q3 and Q4
Desired performance	To meet or exceed the target set
Indicator responsibility	All core Executives

Indicator title	3.8 Increased TIA brand equity
Definition	Rating from customer/stakeholder survey undertaken to measure the Agency's performance against measure implemented
Source of data	Customer/stakeholder survey report
Method of calculation	Qualitative and quantitative survey methods agreed to between TIA and the appointed service provider based on industry best practice
Means of verification	Verification of supporting documentation
Assumptions	High level of participation by sampled participants
Disaggregation of beneficiaries	N/A
Spatial transformation (DDM)	N/A
Calculation type	Non-cumulative
Reporting cycle	Annual
Desired performance	To meet or exceed the target set
Indicator responsibility	Executive: Corporate Services

Note concerning disaggregation of beneficiaries:
For simplicity, the following terms are more fully described depending on the context and the nature of the indicator.

Term	Description
Historically disadvantaged individuals	Entrepreneurs who are historically disadvantaged individuals or businesses owned by historically disadvantaged individuals
Women	Women-owned businesses or women entrepreneurs
Youth	Youth-owned businesses or youth entrepreneurs
Persons with disabilities	Entrepreneurs who are persons with disabilities or businesses owned by persons with disabilities


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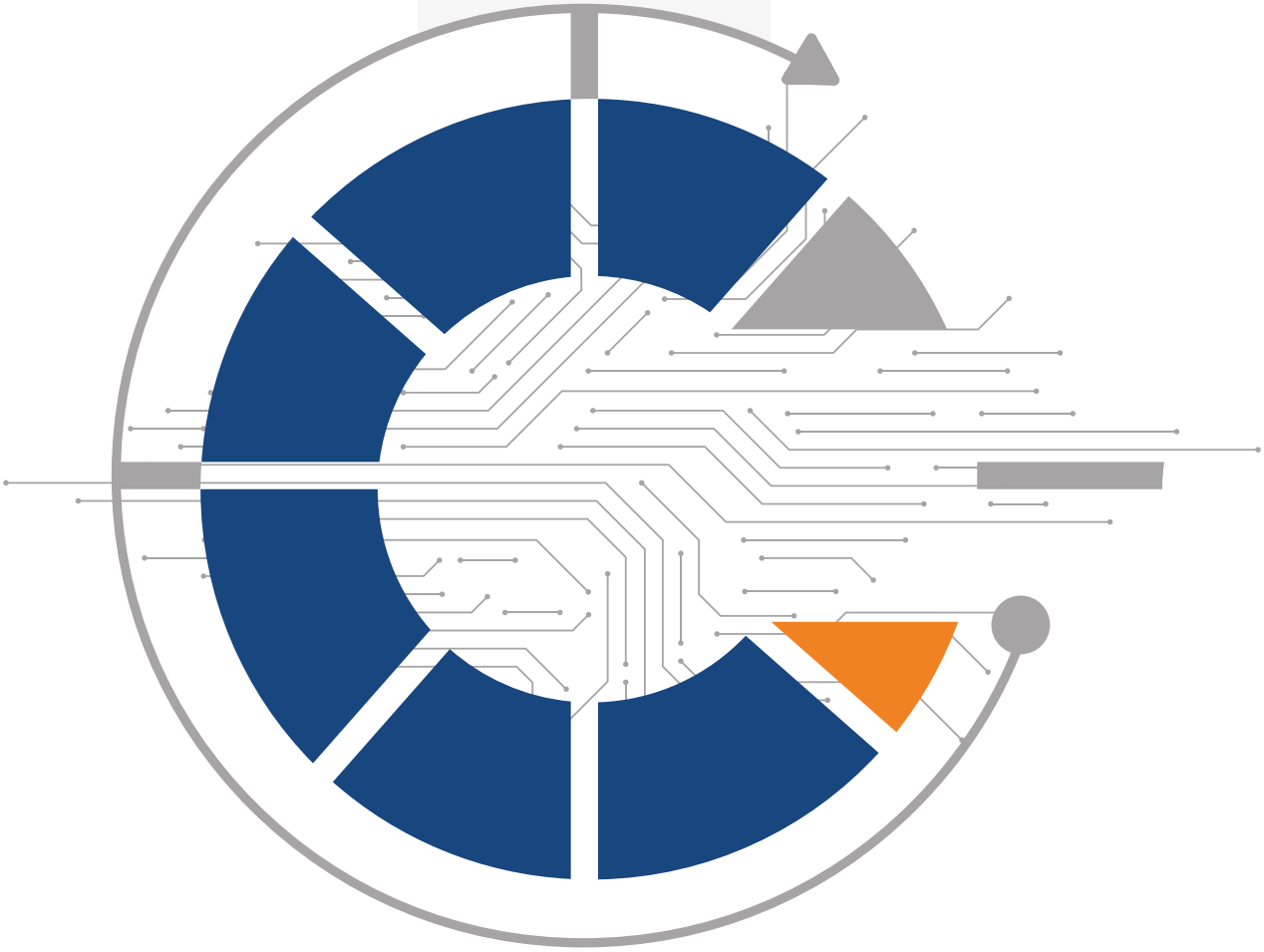

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