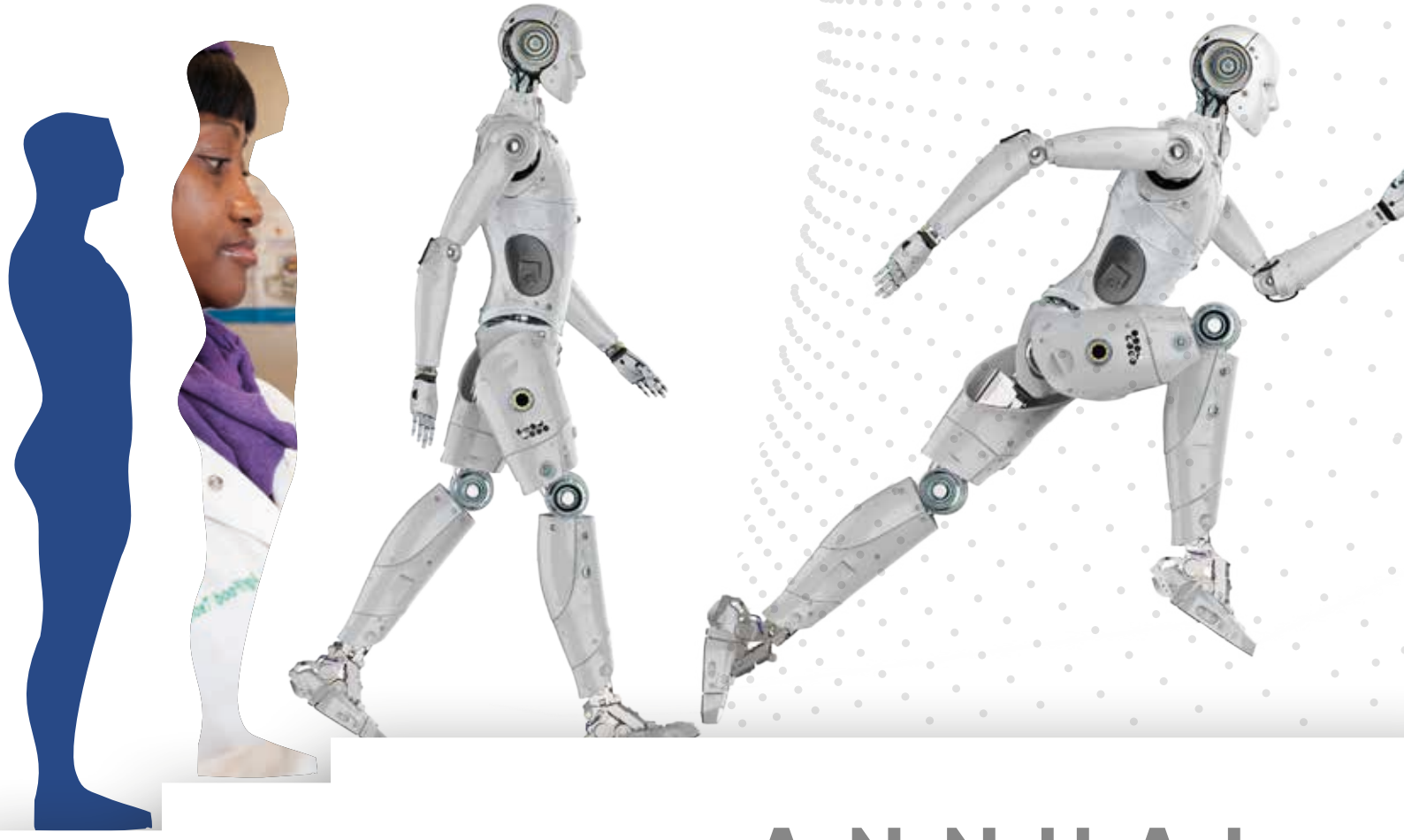
technology innovation
AGENCY
Innovating Tomorrow Together



ANNUAL REPORT 2017/18

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

CONTENT

1. PREFACE

ISO CERTIFICATION

The Technology Innovation Agency (TIA), an agency of the Department of Science and Technology (DST) received its ISO 9001:2015 Quality Management System certification during March 2018. Organisational capability built on robust systems and processes is core to operational excellence and driving service excellence. The ISO certification is augmented by TIA's track record of consistent clean financial and performance audits during its annual external audit process.

TIA operates through a value chain approach in funding and enabling the development of technologies. To play this role effectively, TIA must facilitate the development, implementation and maintenance of organisation-wide Quality Management Systems compliant to, but not limited to, ISO 9001, SANAS, ISO 14001, and ISO 18001 standards. This serves as a key building block to enhance TIA's continuous improvement initiatives that seek for enhanced operational efficiency, superior service delivery and a reliable control environment to ultimately meet and exceed customer needs and expectations.

2. OVERVIEW BY THE **CHAIRMAN**

It is my pleasure to present TIA's FY2017/18 Annual Report. As the new Board concludes the first year of its four-year term of office, we confidently confirm TIA's position as a critical component in the National System of Innovation (NSI); its purpose being to enrich the lives of the South African people, giving dignity and ensuring wellbeing through the enablement of innovation.

In the year under review TIA has elected as one of its priorities to focus on evolving into a transformative organisation to create greater impact in support of the prescripts of the National Development Plan (NDP), specifically to address the triple challenge of poverty, unemployment and inequality. The new White Paper on Science and Technology provides the necessary direction as TIA nears the end of its strategic cycle in FY2019/20. Greater emphasis will be placed on technological innovation that addresses the challenges faced by younger role players, women and people living with disabilities in order to increase socio-economic impact. The Fourth Industrial Revolution will shape the way TIA does business and will include much needed improvement measures to promote innovation.

As a funder, TIA has moved past the consideration of normal grant funding to reach its targets, and has in addition re-affirmed its mandate to use funds to actively exploit innovation and support it through to commercialisation to ensure that the impact of its core function is realised. In a further bold move, in order to augment its annual allocation, plans are in place to attract further income within both the public sector and business, with viable relationships with business having been built over the last year.

International collaborations have seen strategic engagements with role players on the African Continent, Europe and Asia. Targeted engagements, with the assistance of the shareholder, the DST, has enabled TIA to establish and maintain working relationships with various African countries to advance the visibility of the TIA mandate and establish purposeful relationships for mutual benefit. These established relationships will inevitably lead to much needed capacity-building to sustain TIA's objectives, with the required planning and preparatory work having commenced. The European footprint was created with existing programmes geared at critical skills development in the innovation space. These standing relationships have

"We confidently confirm TIA's position as a critical component in the National System of Innovation; its purpose being to enrich the lives of the South African people, giving dignity and ensuring wellbeing through the enablement of innovation."

enabled periodic short-term exchange programmes that facilitated invaluable exposure.

Locally, as a priority, TIA is required to advance the Bio-economy Strategy, which seeks to derive socio-economic benefits from bio-technology, focusing on the pharmaceutical, agricultural and industrial spheres. TIA is expected to adopt the role as advisor to the Minister on refining the strategy and identifying weaknesses and opportunities, and ensuring success. In doing so, this success will mean the creation of new industries, sustainable jobs and improve the lives of many South Africans.

We have acknowledged that in order to realise the success of the many ambitious initiatives, projects, programmes and strategic partnerships, the eco-system within which TIA operates will need to be coherent, strong and sustainable; taking into consideration legislative and policy impacts, legal support, financial imperatives, and collaborations with institutions with a similar mandate, globally.

It is also noted that success on any level is impossible to achieve without strong operational support and an engaged employee complement. As TIA's aspiration is to add value to its stakeholders through the fulfilment of its purpose and established mandate we will continue to challenge ourselves. The pace of innovation and technological advancement is staggering and a culture of agility is what we will require.

Professor Edward Christian Kieswetter
Chairman of the Board

3. OVERVIEW BY THE **CHIEF EXECUTIVE OFFICER**

I am pleased to present to you the FY2017/18 Annual Report, which demonstrates TIA's growth and development as an organisation, improved levels of service and increased impact achieved in supporting the National System of Innovation.

TIA is charged with stimulating the economy and improving the lives of our people through exploiting the country's knowledge production related to innovation and technology development. In the year under the review the country could only manage a 1.3% GDP growth (2017)[6]. This strained economic position was compounded by a crippling drought and declining quality of our water resources. Notwithstanding this, our commitment and determined focus on socio-economic dividends remained unwavering in *"stimulating technological innovation for social-economic impact"*.

To this end, we monitored our efficiency ratios, productivity levels and economic impact multipliers very closely. For our intent and purpose as an organisation is to enrich people's lives, give dignity and ensure wellbeing through enabling innovation. To enable to do so, we used the National Development Plan 2030 as our guideline to prioritise investment of these funds in new technology that could impact positively on the quality of life of South Africans.

HIGHLIGHTS

TIA facilitated many positive outcomes for our clients in the year under review. Among these were;

- the commercialisation, in partnership with the IDC, for the international market of a truly South African born innovation, the ProPlant mechanised tree planting machine. This project has been maintaining and creating jobs and has further promising export possibilities.
- the opening of AgriProtein's nutrient recycling production facility in Philippi, an economically depressed area in the Western Cape. The project, which uses fly larvae, fed on existing organic waste to produce animal feed, was funded by TIA. The facility now employs 135 people, significantly improving their lives. It has the possibility of expansion into other areas.
- TIA is proud to be part of the amazing success story of *Elemental*, a mathematical tool that calculates what happens to the fuel in the aircraft wings during turbulence. A small team, based at UCT under leadership of Arnaud Malan, secured a contract with a large aircraft manufacturer where the technology was adopted into the aircraft design soon after completion of the project. Funding from TIA has been a valuable catalyst leading

6 Statistics SA

"Our commitment and determined focus on socio-economic dividends remains unwavering as we continue "stimulating technological innovation for social-economic impact".

to further related projects, such as a fan design tool for large industrial fans. Investing in research talent such as this is vital for our country's future prosperity.

- Cardio-flow, an excellent screening tool for the primary health care sector that is being developed by the CSIR with the assistance of TIA funding, promises to have a positive impact on many people's health and wellness.
- New mining technology that can extend the lifespan of our mines is being developed by CMTI Consulting with funding from TIA. Unlocking more gold and platinum reserves with this technology can save jobs and will have many socio-economic benefits.
- TIA's Youth Technology Innovation Programme, which brings youth into the technology eco-system, has seen exciting projects, such as the Spinetector Suit that protects the upper bodies of underground mineworkers, on course to achieve commercialisation.
- Technology Stations, which provide access to world-class infrastructure and expertise that would otherwise not be available to stakeholders in the NSI, celebrated success with projects such as John Gray and Sons, a female-owned enterprise manufacturing specialised industrial brush ware and general and hygiene cleaning products. The company is now supplying their products to local clients as well as others on the continent.
- I would like to congratulate Mr. Bandile Dlabantu from Khepri Innovations (a participant in the Global Cleantech Innovation Programme (GCIP) top performers for 2017. GCIP is funded by the Global Environment Facility and implemented by the United Nations Industrial Development Organization to promote environmentally friendly clean technologies in SMMEs around the world), who was announced as the overall winner for his mobile insect bio-conversion unit, which uses black soldier fly larvae to convert organic waste into animal feed, helping emerging farmers to improve their yields. Ms. Euodia Naanyane-Bouwer received a "Special Category" commendation for the social impact of her reusable, bio-degradable Gracious Nubian sanitary pads at the GCIP Global Week and Cleantech Open Global Forum in Los Angeles, USA.

The above are only a few of TIA's successes in a quest for a better life for all in the year under review. We believe that, with our focus on the "TIA" ethos, we will continue to play a significant role in addressing the triple challenge of inequality, poverty and unemployment.

THE T.I.A. ETHOS

Following on from the previous year we maintained our focus on the "TIA" ethos of **Teamwork / Impact / Accountability**.

Teamwork – our internal corporate and NSI teamwork initiatives have yielded good results. We have established bilateral engagements with all key strategic stakeholders, and our independent "Stakeholder Satisfaction Index 2017" results indicate an improvement from the previous year's 5.4 to 6.7 (out of 10). On the internal front, our Staff Engagement Survey demonstrated an improvement from the previous year's 3.5 (out of 5) to this year's 3.8 (out of 5).

Impact – our independent Economic Impact Assessment for the year under review has revealed an improvement of 3.55 from the previous year's 3.38.

Accountability - a robust and stable control environment is non-negotiable for any PFMA regulated entity. During the year under review the TIA obtained its ISO9001:2015 accreditation on the first attempt; it also achieved its fourth successive year of clean audits.

LOOKING AHEAD

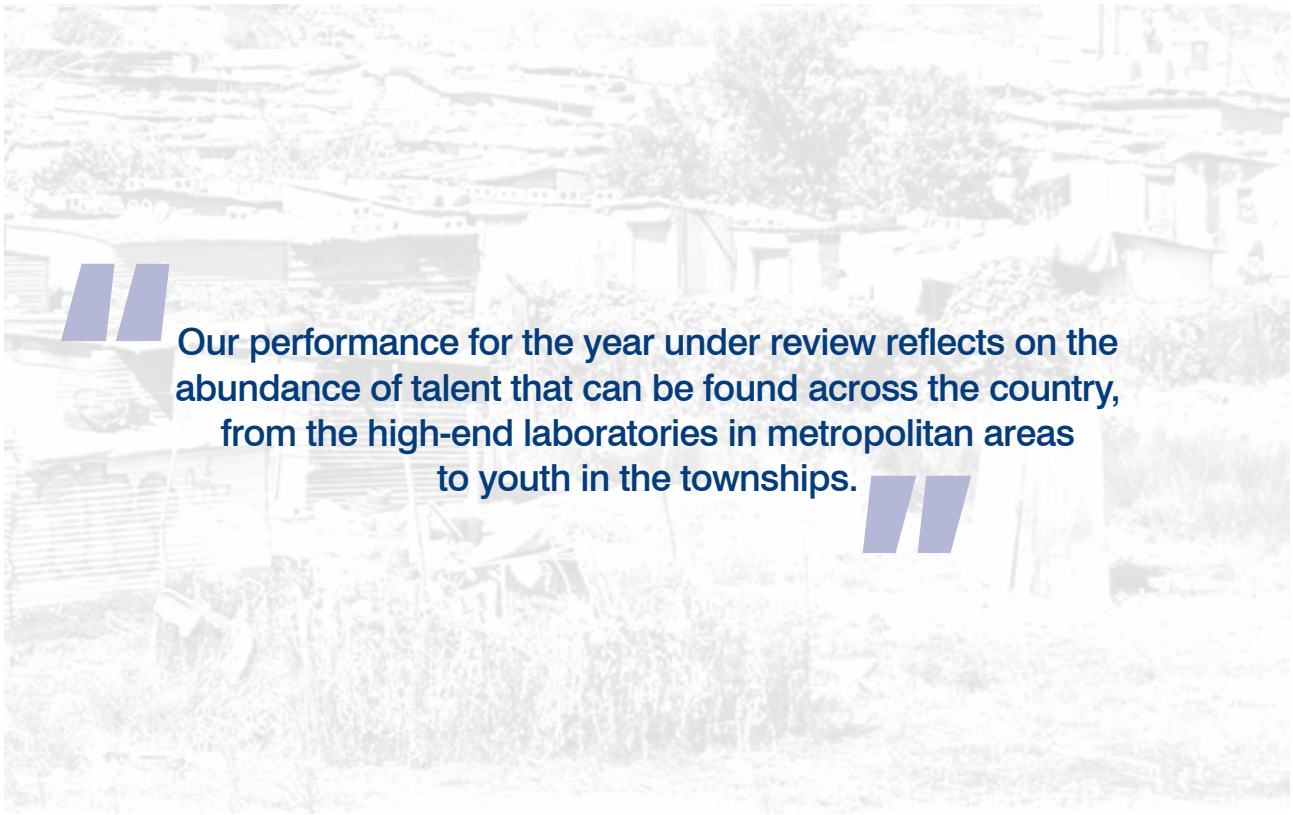
Whilst we acknowledge and are very pleased that all indices have shown improvements, our resolve to continuously improve will be sustained until we have our desired end state in sight. Strategically we have augmented our approach to deploying our mandate by introducing the *"glass pipeline concept"* for value chain visibility and institutional integration. **We have also started with the initial phases of the "hub-and-spoke model" where we position the TIA as a national competence by providing an implementation service to enable all national, provincial and local government entities with an innovation agenda as they respond to the National Development Plan 2030 goals.** In addition, we are going to establish and strengthen high yield strategic partnerships with a key focus to enable a full value chain approach, we are extremely proud of the support and commitment shared by our partners, especially around the strategic evolution of the organisation and its ambitions going forward. **As an organisation in transition, we continue to consolidate our gains and ensure that the improvements find sustainability, that we move from consistent practice to predictable efficacy.**

Our performance for the year under review reflects on the abundance of talent that can be found across the country, from the high-end laboratories in metropolitan areas to youth in the townships. Going forward it is our determination to target rural areas and townships through easy access processes and rapid response funding instruments. The Youth programme will be reviewed for greater coverage and impact and we are confident that outcomes of these enhancements will be demonstrated in the coming year.

Our portfolio is continually reviewed and from the results of the past year's assessment, **it is clear that we need to continue working harder to reach out to a more diverse base of applicants, activity in the NSI still lacks relative participation from youth, previously disadvantaged people, females and people with disabilities**. To this end we have developed a BEE Policy which was canvassed with the relevant stakeholders. This would be implemented during during the next financial year.

THANK YOU

The end of the year under review marked my third-year anniversary with the organisation and the end of the inaugural year of the current Board who were appointed at the beginning of FY2017/18. During this transitionary period, we also said farewell to Minister Ms. Naledi Pandor and welcomed our new Minister, Ms. Mmamoloko Kubayi-Ngubane. My heartfelt gratitude to Professor Edward Kieswetter, Chairman of the Board, all members of the Board, the Director General, Dr Phil Mjwara, all our DST Programme 1, 2, 3 and 5 colleagues and the various other DST officials who have worked behind the scenes to support us.



> **Our performance for the year under review reflects on the abundance of talent that can be found across the country, from the high-end laboratories in metropolitan areas to youth in the townships.**

To the TIA EXCO team, you have demonstrated immense passion and dedication to the TIA by stepping in and holding the fort. You are important cogs in the machine that is driving technological innovation in order to improve the lives of your fellow South Africans. Thanks, are also due to my internal office support team for always being there with empathy and courageous support.

I am grateful to all our staff nationally for their individual contribution to the performance results we have achieved. **We are on a journey of improving the organisation so that we can build and strengthen our nation, and each one of you are contributing to a greater good and higher purpose of enriching lives. Whilst on this journey, we will never be done evolving, learning and growing, so we are always embracing a continuous improvement cycle.** Let's remain steadfast in our commitment, lets enjoy each step along the way while we continue to make TIA the catalyst of socio-economic transformation in South Africa.

As we close a demanding year, we realise that we are at the precipice, let's not relent as we "make excellence an attitude".

Barlow Manilal
Chief Executive Officer

4. OVERVIEW BY THE **CHIEF FINANCIAL OFFICER**

"TIA is proud to announce that it received an unqualified, clean audit opinion for the fourth consecutive year."

The year past witnessed TIA continuing its spirited efforts in providing funding and non-funding support to technology innovations which are expected to contribute positively to the economy and improve the lives of the people of South Africa. In FY2017/18, TIA sustained its investments in bio-technology and technology infrastructure in a bid to develop new capabilities that bring the country closer to realising the aspirations of the NDP2030, as well as addressing South Africa's triple challenge of poverty, unemployment and inequality.

However, with the South African fiscus under significant strain due to a declining economy, TIA was faced with a challenge in managing the pressures, higher demand for funding within the NSI and the rising cost of goods and services.

TIA is proud to announce that it received an unqualified, clean audit opinion for the fourth consecutive year. In consideration of the cash flow challenges experienced by SMMEs, TIA averaged a three-day vendor payment turn-around time, which is exceptional when compared to the national average of 45 days.

This report once again indicates TIA's commitment towards a healthy control environment, sound governance principles and organisational excellence in order to allow it to play a contributing role in economic growth and socio-economic development in South Africa.

4.1. REVENUE

4.1.1. PARLIAMENTARY GRANT AND SPECIFIC CONTRACTED AMOUNTS FROM THE DST

Funding from the DST is made up of two funding components: the MTEF Parliamentary grant, and funding for 'specific contracts' related the initiatives supported by DST.

TIA's Parliamentary grant increased from R382m in FY2016/17 to R397m in the year under review, representing a marginal increase of 4%.

The specific contracted agreements amounted to R69m, a decrease of 17% from the previous year's amount of R83m. The decline is largely attributed to TIA not receiving

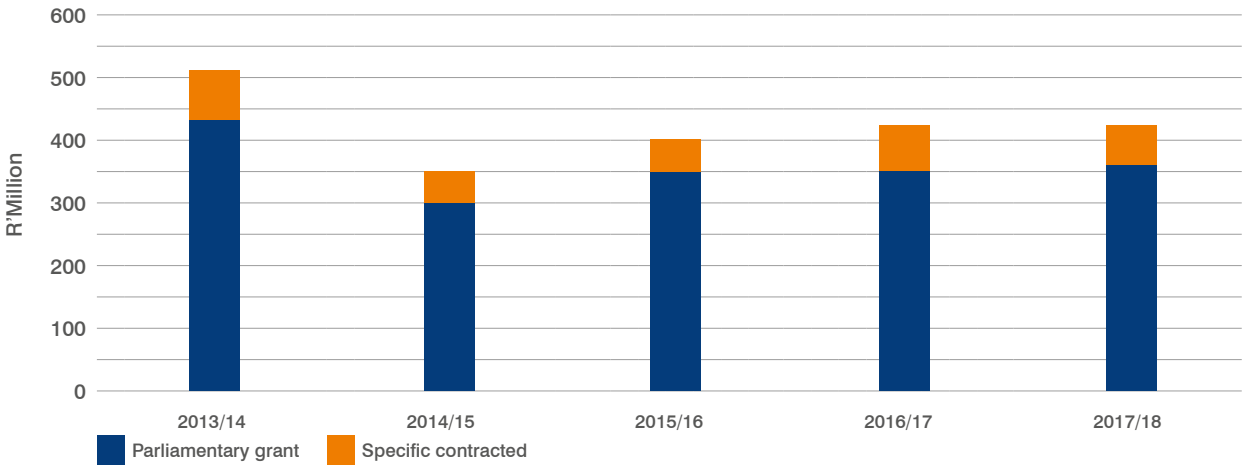


Figure 2: Five-year comparison of grants recognised by the entity in Rm

any additional allocation from the DST for the capital expansion projects of the Technology Stations Programme. TIA did, however, secure additional projects, repatriated from the DST, which will be implemented in the coming financial year. These projects include the Innovation for Inclusive Development Programme focusing on grassroots innovation; the Agriculture Bio-Economy Innovation Partnership Programme aimed at enhancing collaboration within the Agriculture sector on access to nutrition; and the Forest Molecular Genetics Programme.

4.1.2 INVESTMENT AND OTHER INCOME

Investment and other income decreased by 34% to R23m for FY2017/18, which posed a challenge to TIA's ability to provide the funding required. It therefore focused primarily on supporting and stimulating the innovation enabling environment, and enhance collaboration between the public sector, educational institutions and industry.

Equity investments in two companies were sold and the entity realised a profit of R4m on these transactions. These funds were directed at supporting Seed Fund projects. Interest earned on funds invested in the Corporation of Public Deposits with the South African Reserve Bank amounted to R10m and interest earned on a loan payable to TIA amounted to R2m. Royalty income was received from five investments.

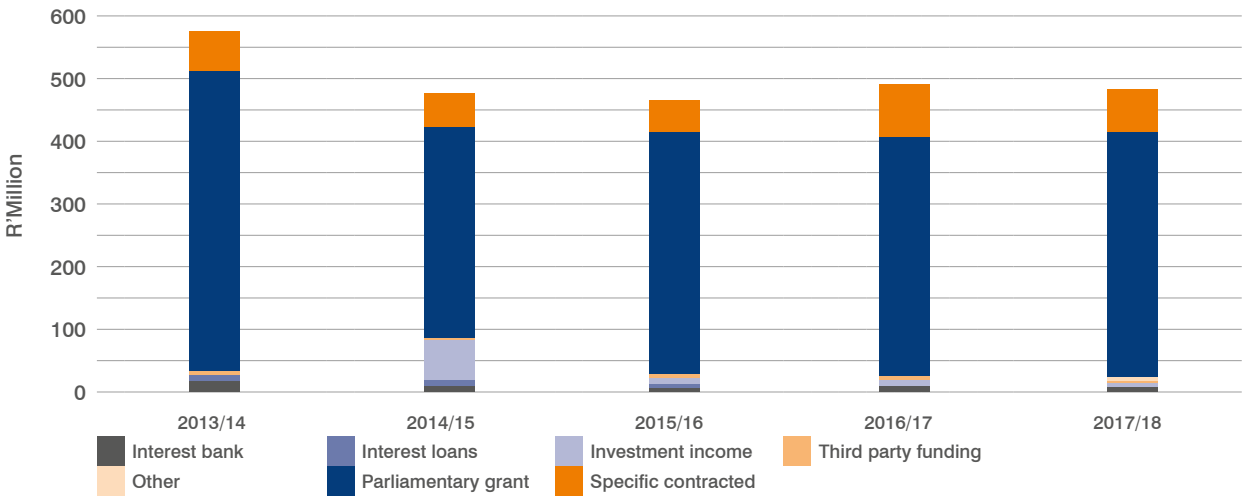


Figure 3: Five-year comparison of income recognised by the entity in Rm

TECHNOLOGY INNOVATION AGENCY (TIA): FIVE-YEAR REVIEW

STATEMENT OF FINANCIAL PERFORMANCE	2013/14 R'm	2014/15 R'm	2015/16 R'm	2016/17 R'm	2017/18 R'm
Total revenue	**569**	**473**	**463**	**492**	**489**
Parliamentary grant	481	338	385	382	397
Specific contracted income	62	51	44	83	69
Other Income	26	83	34	27	23
Total expenditure	**586**	**535**	**509**	**599**	**464**
Employee costs	118	111	84	89	99
Project funding disbursements	374	373	379	465	309
Administration costs	94	51	47	46	56
Surplus/(Deficit)	**-17**	**-62**	**-46**	**-107**	**25**

STATEMENT OF FINANCIAL POSITION					
Total assets	**282**	**244**	**210**	**122**	**177**
Property and equipment	23	14	13	16	14
Investment and funding assets	88	100	49	34	32
Cash and cash equivalents	162	66	132	65	127
Receivables	9	64	16	7	4
Total Liabilities	**28**	**53**	**65**	**84**	**114**
Committed conditional grants	9	16	44	54	88
Current liabilities	19	37	21	29	26
Net assets	**253**	**191**	**145**	**38**	**63**

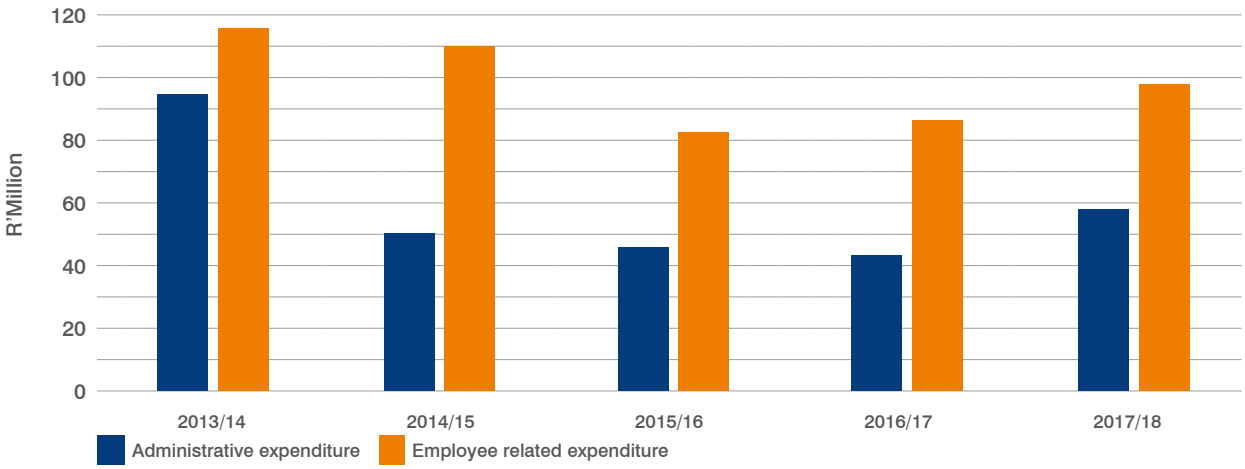


Figure 4: Five-year comparison of administrative expenditure (Rm)

4.2 ADMINISTRATIVE AND EMPLOYEE COSTS

The marginal increase in TIA's grant allocation, set against the cost increases for goods and services, required TIA to continually explore creative ways to contain its operating costs. The operating costs showed an increase when compared to the previous two financial years. This is mainly due to company-wide initiatives launched to streamline our value chain and optimise transactional processes.

4.3. INVESTMENT AND PROJECT FUNDING

The financial year under review was the first year TIA, had to rely purely on its grant allocation and income raised, having depleted roll-over cash in FY2016/17. Prior years' investments enabled the Technology Station Programme to assist more SMMEs, which has led to an increased number of products and prototypes being developed. This has had several socio-economic benefits, such as new or improved companies/industries leading to new jobs, new wealth, and reduced environmental impact.

Having invested substantially into the bio-technology sector over the preceding financial years, the NSI has benefitted from more matured bio-technology innovations in various sectors of the economy. These innovations all have the possibility to facilitate economic growth.

4.4. SURPLUS

TIA realised an accounting profit of R25m for the period under review, in comparison to a deficit of R106m in FY2016/17.

The nature of technology development within the mandate of TIA falls in the high-risk category, often with unpredictable outcomes. In such a high-risk environment, there is a concomitant high probability that milestones will not be achieved as contracted and it is therefore difficult to forecast and deliver a zero surplus/deficit budget at the end of the financial year. Whilst mitigating the risks through re-allocation of budgets and dynamic project management, there will always be an element of roll over at the end of the financial year. In terms of section 53(3) of the Public Finance Management Act, TIA will request approval from National Treasury to retain the R12m surplus funds, which will be used to fund technology innovation projects and programmes for socio-economic impact in FY2018/19.

Werner van der Merwe
Chief Financial Officer

PART A

GENERAL INFORMATION

5. STRATEGIC OVERVIEW

The Technology Innovation Agency (TIA) was established in terms of the TIA Act 26 of 2008, with the objective of stimulating and intensifying technological innovation in order to improve economic growth and the quality of life of all South Africans. This is achieved by developing and exploiting technological innovations.

VISION

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

TIA's aspiration finds expression in the vision of DST, which is: "Increased wellbeing and prosperity through science, technology and innovation", in that technological innovation should be intensified to uplift the lives of all citizens of South Africa through inclusive development. TIA will strive to ensure that its strategic programmes will yield outcomes that are aligned to this goal.

MISSION

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

VALUES

TEAMWORK

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

INTEGRITY

At TIA everyone strives to do what they said they would, when they said they would do it. “We keep our word”.

PROFESSIONALISM

At TIA we apply the most appropriate skills, competencies, experience & knowledge of best practices cohesively in conducting our work.

TRANSPARENCY

Engage in inclusive open communication, and hold each other accountable for our performance and conduct.

EXCELLENCE

TIA will be accountable to all stakeholders to deliver exceptionally high standards of work and performance.

INNOVATION

At TIA we foster a culture where we continually nurture and implement new ideas from our staff and stakeholders that enhance how we do things and deliver services.

6. PURPOSE

"Enriching people's lives, giving dignity and ensuring wellbeing through enabling innovation"

7. LEGISLATIVE AND **OTHER MANDATES**

The mandate of the TIA is derived from the provisions of the Technology Innovation Act (Act No. 26 of 2008), which establishes TIA as an Agency to promote the development and exploitation, in the public interest, of discoveries, inventions, innovations and improvements. The Act defines that "the object of TIA is to support the State in stimulating and intensifying the technological innovation in order to improve economic growth and the quality of life of all South Africans by developing and exploiting innovations".

8. STRATEGIC **OBJECTIVES**

Strategic Objective 1	To provide technology development funding and support in high impact areas
Strategic Objective 2	To provide thought leadership and an enabling environment for technology innovation in collaboration with other role players
Strategic Objective 3	To develop an effective and efficient internal environment to successfully execute the strategy

9. STRATEGIC OUTCOME **ORIENTED GOALS**

Strategic outcomes oriented goals identify areas of institutional performance that are critical to the achievement of the mission. They should stretch and challenge the institution, but must be realistic and achievable. Strategic outcomes oriented goals focus on impacts and outcomes, but in exceptional circumstances may deal with other aspects of performance. A strategic outcomes oriented goal is a statement of intent that is specific, measurable, achievable, relevant and time-bound (SMART). TIA is currently implementing its FY2015/20 Strategic Plan, which was tabled in Parliament in March 2015. In order to position the activities of the Agency within the framework of the NDP and other DST priorities, Strategic Plan is structured around three strategic outcome-oriented goals that will drive the initiatives of the agency over the next five years. To this end, it has formulated these goals so to ensure that it aligns its performance to realise the defined objectives:

Goal 1: To support the commercialisation of technological innovations;

Goal 2: To increase infrastructure access for technology development; and

Goal 3: To stimulate an agile and responsive NSI.

10. ORGANISATIONAL **STRUCTURE**

The organisational structure comprises of four divisions as depicted below.

The total number of filled positions is 144. The reported staff turnover rate amounted to 6.96% and the average vacancy rate was 8.1%.

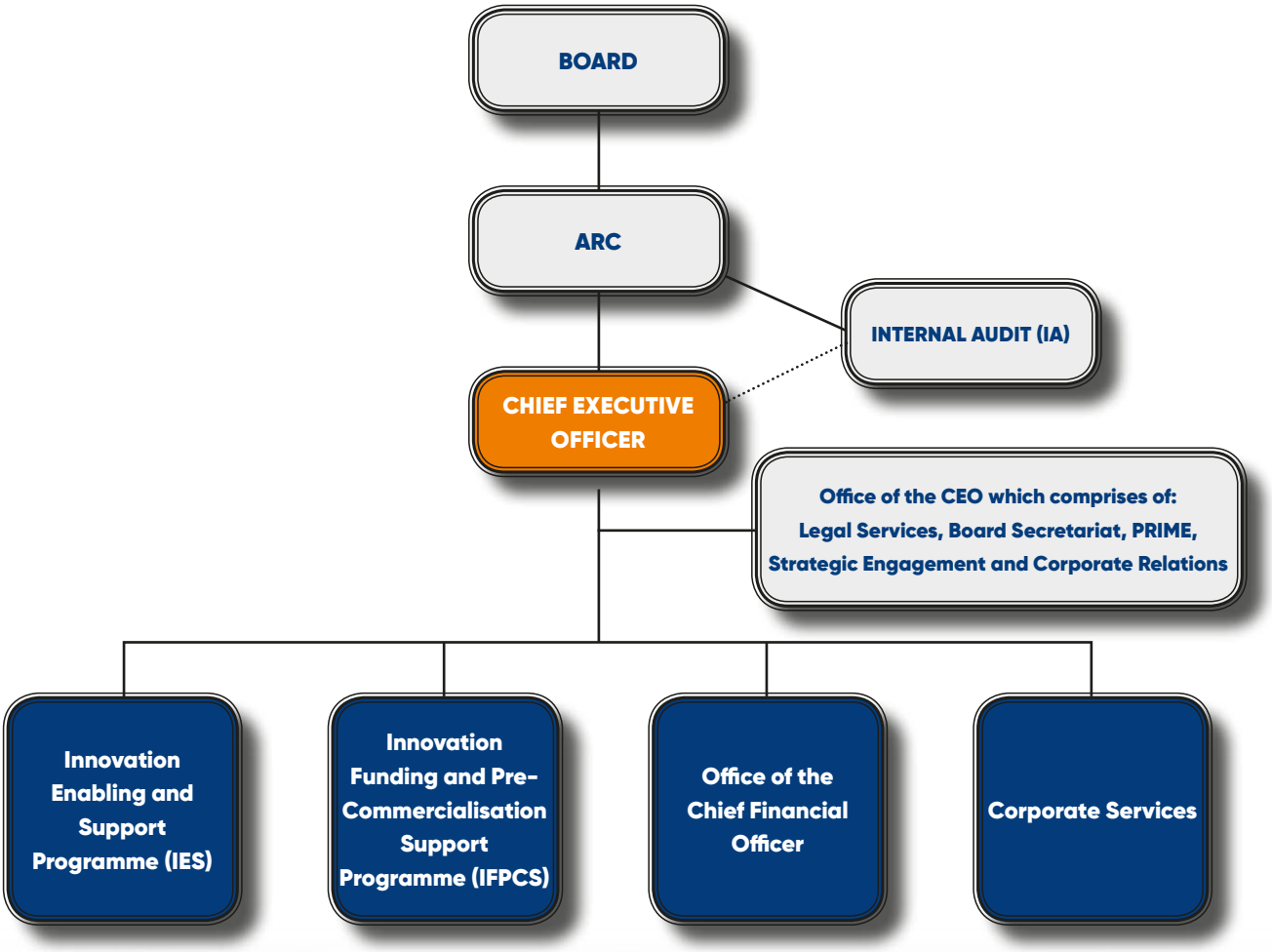


Figure 12: TIA organisational structure

11. EXECUTIVE COMMITTEE MEMBERS (EXCO)

MR. BARLOW MANILAL

CHIEF EXECUTIVE OFFICER

DR BETHUEL SEHLAPELO

EXECUTIVE: INNOVATION FUNDING AND PRE-COMMERCIALISATION

01 APRIL 2017 – 13 SEPTEMBER 2017

MR. WERNER VD MERWE

ACTING EXECUTIVE: INNOVATION FUNDING AND PRE-COMMERCIALISATION

14 SEPTEMBER 2017 – 31 MARCH 2018

MR. VUSI SKOSANA

ACTING EXECUTIVE: INNOVATION ENABLING AND SUPPORT

01 OCTOBER 2017 – 31 MARCH 2018

MS. BERENICE LUE-MARAIS

EXECUTIVE: INNOVATION ENABLING AND SUPPORT

01 APRIL 2017 – 30 SEPTEMBER 2017

MR. WERNER VD MERWE

CHIEF FINANCE OFFICER

01 APRIL 2017 – 13 SEPTEMBER 2017

MS. FEMKE PIENAAR

EXECUTIVE: CORPORATE SERVICES

01 APRIL 2017 – 23 NOVEMBER 2017

MS. SARUSHA PILLAY

ACTING EXECUTIVE: INNOVATION ENABLING AND SUPPORT

01 OCTOBER 2017 – 31 MARCH 2018

MS. JOLANDA HECTHER

ACTING CHIEF FINANCE OFFICER

14 SEPTEMBER 2017 – 31 MARCH 2018

MS. MATSHIDISO MATLOLANE

ACTING EXECUTIVE: CORPORATE SERVICE

24 NOVEMBER 2017 – 31 MARCH 2018

PART B

PERFORMANCE INFORMATION

TIA reflects on the past year by critically considering its mandated performance. The pressing challenges facing the country owing to weak economic conditions have prompted TIA to assess how its strategic programmes are ***addressing the needs of all South Africans.***

In seeking to achieve a broader socio-economic impact, TIA has aligned its strategic programmes with the National Development Plan 2030 (NDP) which recognises that faster, broad-based growth is needed ***to transform the economy, create jobs, and reduce poverty and inequality.*** The NDP positions technological innovation as an enabler that assists the private and public sector and the broader society. The plan argues for a larger, more effective innovation system, closely aligned with firms that operate in sectors consistent with the country's economic growth strategy.

The report hereon outlines how TIA has sustained its efforts to ensure efficient, effective and economic utilization of limited financial resources towards socio-economic impact. For it is TIA's deep-seated desire to connect the technological innovations it develops to people and the economy, so that it enriches lives by achieving a higher standard of living. Therefore, TIA's decisions are based on contributing ***to the future of this country and how together we can create a tomorrow filled with promise and opportunity for all to thrive.***

This Annual Report is structured to articulate TIA's performance for the year by the Chairman of the Board and the TIA Executive. Thereafter a detailed analysis is provided of the year's performance categorised as Strategic Programmes and Sub-programmes. Furthermore, an assessment is made on how the overall performance related to the year's theme of **"Stimulating technological innovation for socio-economic impact"**. The latter part of the document provides the requisite governance and financial reports from the Board, Audit and Risk Committee (ARC), as well as external auditors.

12. PERFORMANCE **HIGHLIGHTS**

PERFORMANCE AGAINST MANDATE

TIA's mandate is derived from the Technology Innovation Agency Act (Act No. 26 of 2008) which aims to promote the development and exploitation, in the public interest, of discoveries, inventions, innovations and improvements. The Act defines that *"the object of TIA is to support the State in **stimulating** and **intensifying** the technological innovation in order to **improve economic growth** and the **quality of life** of all South Africans by **developing** and **exploiting innovations**"*.[1] The key verbs have been defined in the section below to enhance understanding and interpretation.

To stimulate is to incentivise and mobilise actors within the innovation ecosystem to seamlessly progress ideas from proof of concept to full-scale commercialisation.

To intensify is to create and catalyse technology development opportunities to advance ideas in a structured manner.

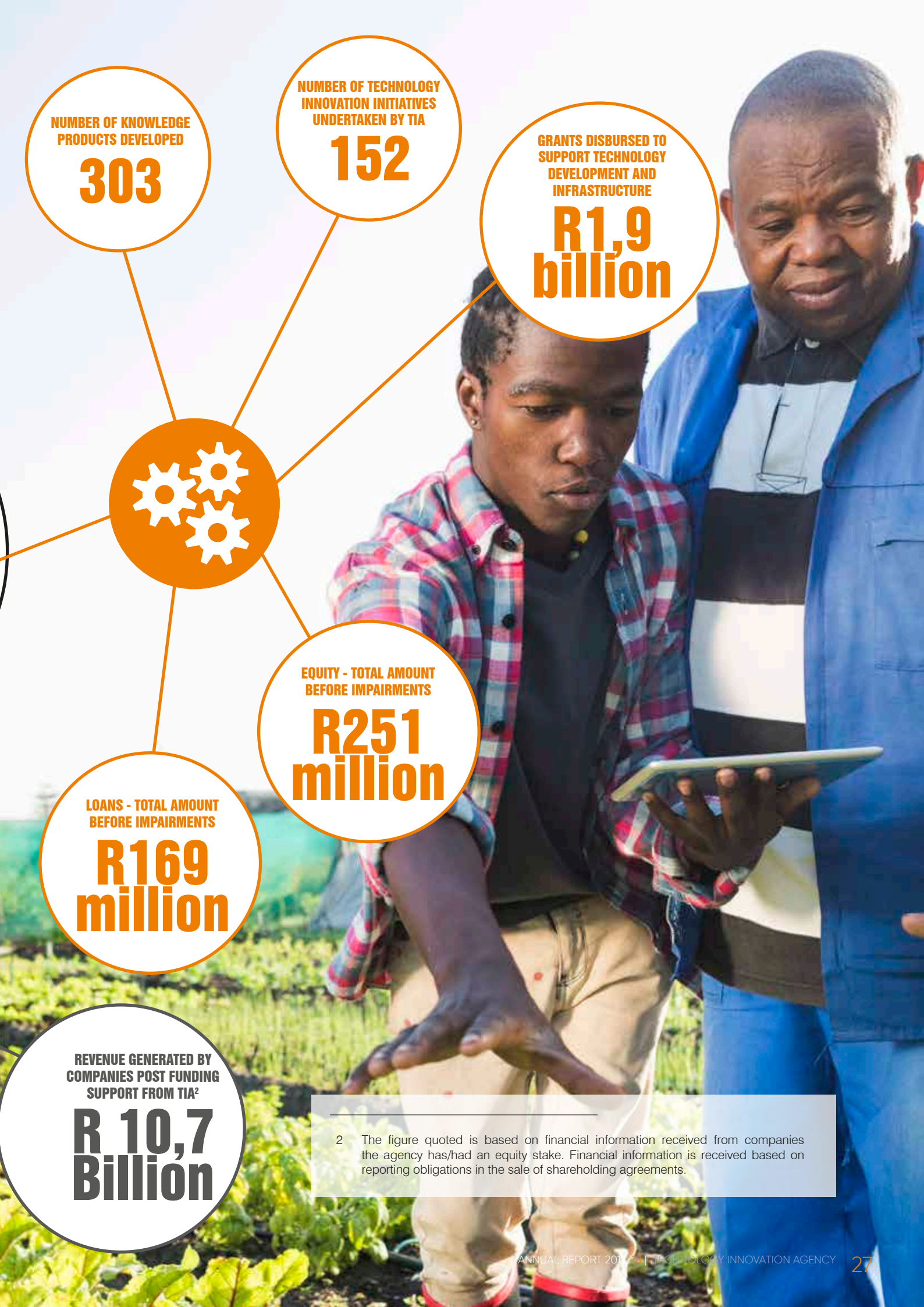
Improve economic growth refers to the contribution that the technologies which have been supported and commercialised make to the country's Gross Domestic Product (GDP), creating and or sustaining of jobs, improvement to the trade balance, enhancing core sector competitiveness and the creation of new industries.

Quality of life refers to the rise in the standard of living (as defined in the National Development Plan 2030) and the improvement in service delivery and equality.

1 Chapter 3 TIA Act (Act No. 26 of 2008).

12.1 FIVE YEAR ACCUMULATED HIGHLIGHTS

12.1.1 CUMULATIVE ORGANISATIONAL RESULTS FROM FY2013/14 TO FY2017/18



2 The figure quoted is based on financial information received from companies the agency has/had an equity stake. Financial information is received based on reporting obligations in the sale of shareholding agreements.

- Investment in SLIEK (Pty) Ltd to further develop and optimise the production process of lactase enzymes to enable lactose-intolerant individuals to benefit from consuming dairy products.
- Investment in Altis Biologics (Pty) Ltd a regenerative medicine development company focused on developing and bringing to market new biomaterials and regenerative biological products, with a particular emphasis on orthopaedic and dental tissue regeneration.
- Investment in SA Cardiosynthesis (Pty) Ltd that develops synthetic heart valves aimed at replacing metal or tissue based alternatives.
- Investment in Strait Access Technologies (Pty) Ltd that developed a medical device for replacing diseased heart valves in low resource settings.
- Investment in CPT Pharma (Pty) Ltd to develop active pharmaceutical ingredients for manufacture of human and animal health products.
- Investment in Zuplex Botanicals a small enterprise who beneficiate selected indigenous plant species for commercial medicinal use.
- Investment in H3D Drug Discovery Platform for the development of new drugs for Malaria and TB.
- Investment in Para-Tube technology that assists persons confined to wheelchairs to utilise ablution facilities.

QUALITY HEALTH CARE FOR ALL

- Investment in AgriProtien technologies who convert organic waste to animal feed protein.
- Investment in Dairy and Beef Genetically Enhanced Breeding Values to improve the quality of livestock.
- Investment in Mabu Casing Soil technology that provides 100% natural soil casing pith to be used as a substitute for peat in the mushroom and horticulture industries.

HOUSEHOLD FOOD AND NUTRITION SECURITY

- **11 474** students on-boarded under the guise of national community colleges through the Skillzbook e-platform. The programme is aimed at on-boarding and capacitating, a significant portion (21 500 to 40 000) of the 320 000 students in the Community Education Training Centres (CETCs) and providing access to Critical Thinking L2, as well as various other empowerment tools.
- **300** candidates (of whom 60% were **African** and 55% were **female**) have undertaken the Foresight, Leadership & Innovation Programme (FLIP). The programme aims to fill the critical management skills gap undermining South Africa's economy by introducing proven methods in long-range problem-solving, foresight skills and leadership developed at Stanford University, USA. Targeted at business and government leaders, the programme is designed to help them tackle strategic challenges in innovation and become more effective in long-term planning and leadership. The National School of Government in partnership with TIA will be rolling out the programme to all provinces and government departments to have access to the programme.

IMPROVING THE QUALITY OF EDUCATION

- Investment in Settled Bed Detector Probe technology designed to minimise blockages in slurry pipelines for ore mining tailings.
- Investment in Blue Cube (Pty) Ltd that designs, manufactures, distributes and supports in-line mineral quantification instruments to help mining companies extract more mineral rich ore.

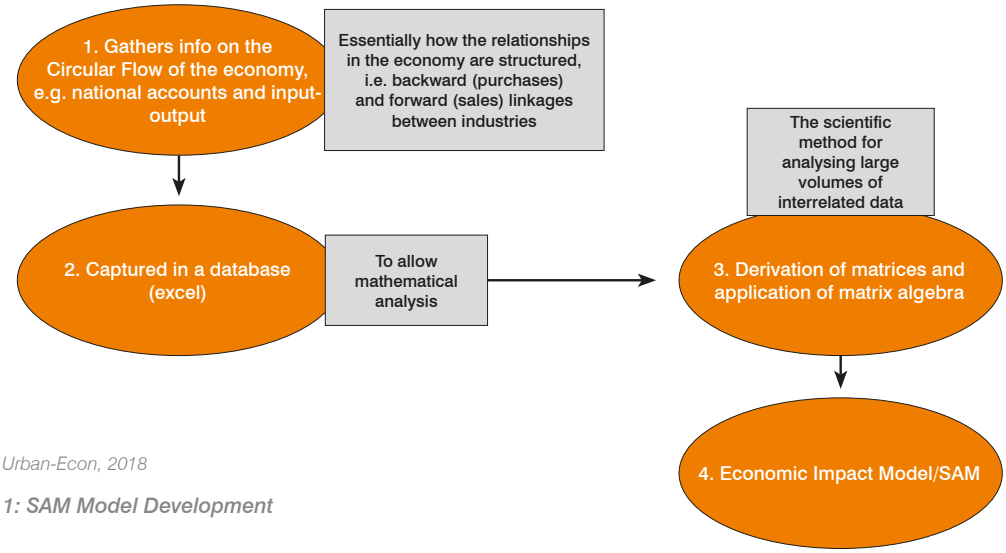
BUILDING ENVIRONMENTAL SUSTAINABILITY AND RESILIENCE

- Investment into the development of membrane electrode assembly (MEA) for the production of hydrogen fuel cells that generate clean energy.
- Investment in InnoVenton Institute which is exploring the possibility of generating biofuels using a colony of micro-algae strands.

ENSURE ENERGY SUPPLY SECURITY, AFFORDABILITY AND CLIMATE-CHANGE MITIGATION

12.2 ECONOMIC IMPACT ASSESSMENT (EIA) FY2017/18[3]

The Agency's EIA approach uses the National Social Accounting Matrix (SAM), which is an internationally and nationally accepted economic impact model that determines the economic impact of an economic intervention, i.e. the Agency's activities, on the macro economic. A SAM represents the flow of all economic transactions that take place within an economy (regional or national) and is essentially a matrix representation of the national accounts for a given country. The way the SAM model is developed is shown next:



Source: Urban-Econ, 2018

Figure 1: SAM Model Development

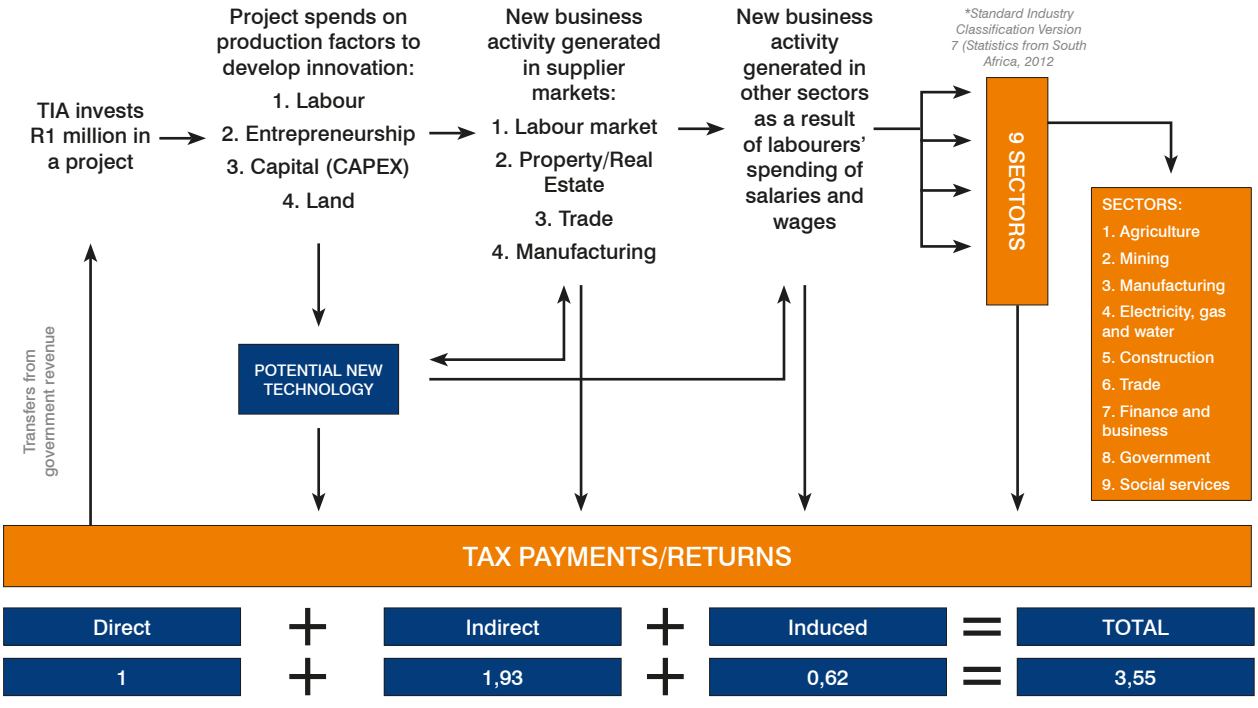


Figure 2: SAM Model Approach

Source: Urban-Econ, 2018

3 A socio-economic impact assessment describes and quantifies the impact, which various interventions can have upon the production, economic growth and tax within the economy, whilst taking cognisance of the welfare effect upon society.

Firstly, the Agency's investment is spent (in the form of disbursements) by the various Programmes and Sub-Programmes and this is the direct impact on the macroeconomy. The various Programmes' and Sub-Programmes' disbursements (expenditure) for developing technologies/assisting beneficiaries affects various supplier industries, where the increase in supplier industries' business activities/economic output/production is the indirect impact. Employees of these supplier industries then have more income (i.e. salaries and wages) as a result of the increase in outputs, which they then use to buy goods and services. This further induces economic activity across various sectors and is termed the induced impact. It also generates tax income for the government.

TIA IMPACT	DIRECT	INDIRECT	INDUCED	TOTAL
New Business Activity	R573,18m	R1 107,14m	R356,35m	R2 036,67m
GDP	R93,79m	R465,49m	R150,34m	R709,62m
Employment (Number)	31	1 705	531	2 267
Income	R8,23m	R218,23m	R65,21m	R291,67m
Tax	R85,55m	R20,55m	R7,58m	R113,68m

Source: Urban-Econ Calculations, 2018.

TIA MULTIPLIERS	DIRECT	INDIRECT	INDUCED	TOTAL
New Business Activity	1,00	1,93	0,62	3,55
GDP	0,16	0,81	0,26	1,23
Employment	0,06	2,98	0,93	3,97
Income	0,01	0,38	0,11	0,50
Tax	0,15	0,04	0,01	0,20

Source: Urban-Econ Calculations, 2018.

TIA MULTIPLIER COMPARISON, 2010/11-2017/18

	DIRECT	INDIRECT	INDUCED	TOTAL
2010/11	1,00	1,10	0,78	2,87
2011/12	1,00	1,11	0,83	2,94
2012/13	1,00	0,94	0,79	2,73
2013/14	1,00	1,01	0,79	2,80
2014/15	1,00	1,06	0,77	2,83
2015/16	1,00	1,01	0,81	2,82
2016/17	1,00	1,66	0,72	3,38
2017/18	1,00	1,93	0,62	3,55

Source: Urban-Econ Calculations, 2018.

The TIA's overall impact has improved year-on-year. A multiplier of 3,38 was achieved in FY2016/17, this has increased to 3,55 for FY2017/18 against a national average of 3,64. A total of 2 267 jobs, as per the production multiplier, were created during this period. The multiplier suggests that for every R1,00 invested (in projects through grants, loans or equity) by TIA, R3,55 worth of value is created within the economy.

ADRESSING THE **TRIPLE CHALLENGES**

12.3 ORGANISATIONAL CONTRIBUTION TO TRIPLE CHALLENGES: FY2015/16 TO FY2017/18

		FY2015/16
TO STIMULATE	Number of SMMEs supported	2 197
	Number of Internships (Local and International)	684
TO INTENSIFY	Number of youth supported in technology development	1 157
	Number of women supported in technology development	619
IMPROVE ECONOMIC GROWTH	Economic Impact Assessment Multiplier	2,82
	Transformation – number of PDIs receiving support	1 347
QUALITY OF LIFE	Transformation – number of people with disabilities receiving support	24

		FY2016/17
TO STIMULATE	Number of SMMEs supported	2 261
TO INTENSIFY	Number of Internships (Local and International)	219
	Number of youth supported in technology development	1 003
	Number of women supported in technology development	664
IMPROVE ECONOMIC GROWTH	Economic Impact Assessment Multiplier	3,38
QUALITY OF LIFE	Transformation – number of PDIs receiving support	1 458
	Transformation – number of people with disabilities receiving support	103

		FY2017/18
TO STIMULATE	Number of SMMEs supported	2 800
TO INTENSIFY	Number of Internships (Local and International)	607
	Number of youth supported in technology development	1 092
	Number of women supported in technology development	794
IMPROVE ECONOMIC GROWTH	Economic Impact Assessment Multiplier	3,55
QUALITY OF LIFE	Transformation – number of PDIs receiving support	1 475
	Transformation – number of people with disabilities receiving support	11

YEAR-ON-YEAR PERFORMANCE

12.4 YEAR-ON-YEAR ORGANISATIONAL PERFORMANCE AGAINST FY2015/20 STRATEGIC PLAN

AMOUNT RECEIVED FROM THIRD PARTIES INVESTING IN TIA FUNDED PROJECTS

STRATEGIC PLAN FY2015/20	FY 2015/16	FY 2016/17	FY 2017/18
R551m	R98m	R182m	R117m

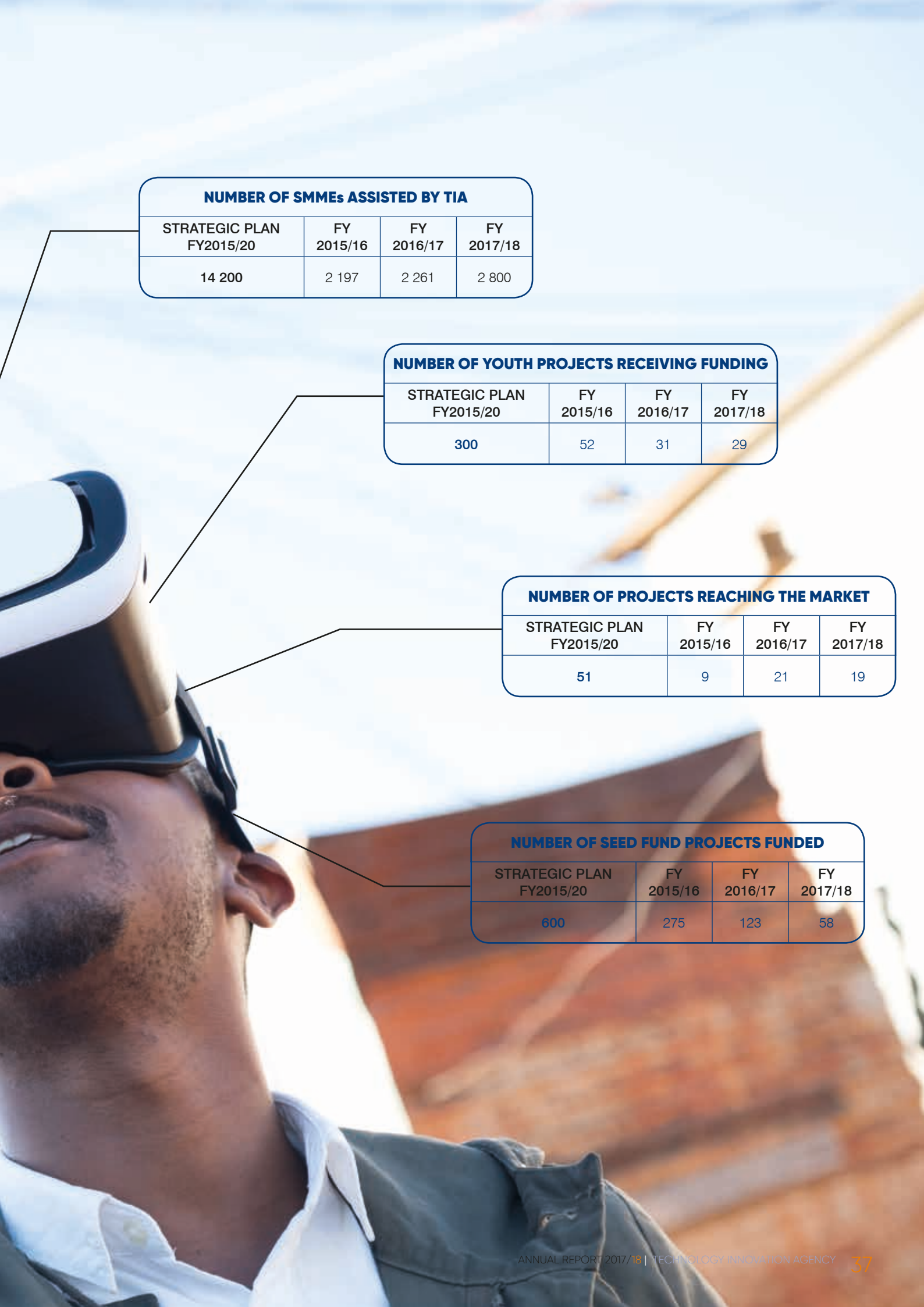
NUMBER OF KNOWLEDGE INNOVATION PRODUCTS DEVELOPED

STRATEGIC PLAN FY2015/20	FY 2015/16	FY 2016/17	FY 2017/18
350	76	64	98

ECONOMIC IMPACT MULTIPLIER[4]

STRATEGIC PLAN FY2015/20	FY 2015/16	FY 2016/17	FY 2017/18
3,7	2,82	3,38	3,55

4 A socio-economic impact assessment describes and quantifies the impact, which various interventions can have upon the production, economic growth and tax within the economy, whilst taking cognisance of the welfare effect upon society



NUMBER OF SMMEs ASSISTED BY TIA

STRATEGIC PLAN FY2015/20	FY 2015/16	FY 2016/17	FY 2017/18
14 200	2 197	2 261	2 800

NUMBER OF YOUTH PROJECTS RECEIVING FUNDING

STRATEGIC PLAN FY2015/20	FY 2015/16	FY 2016/17	FY 2017/18
300	52	31	29

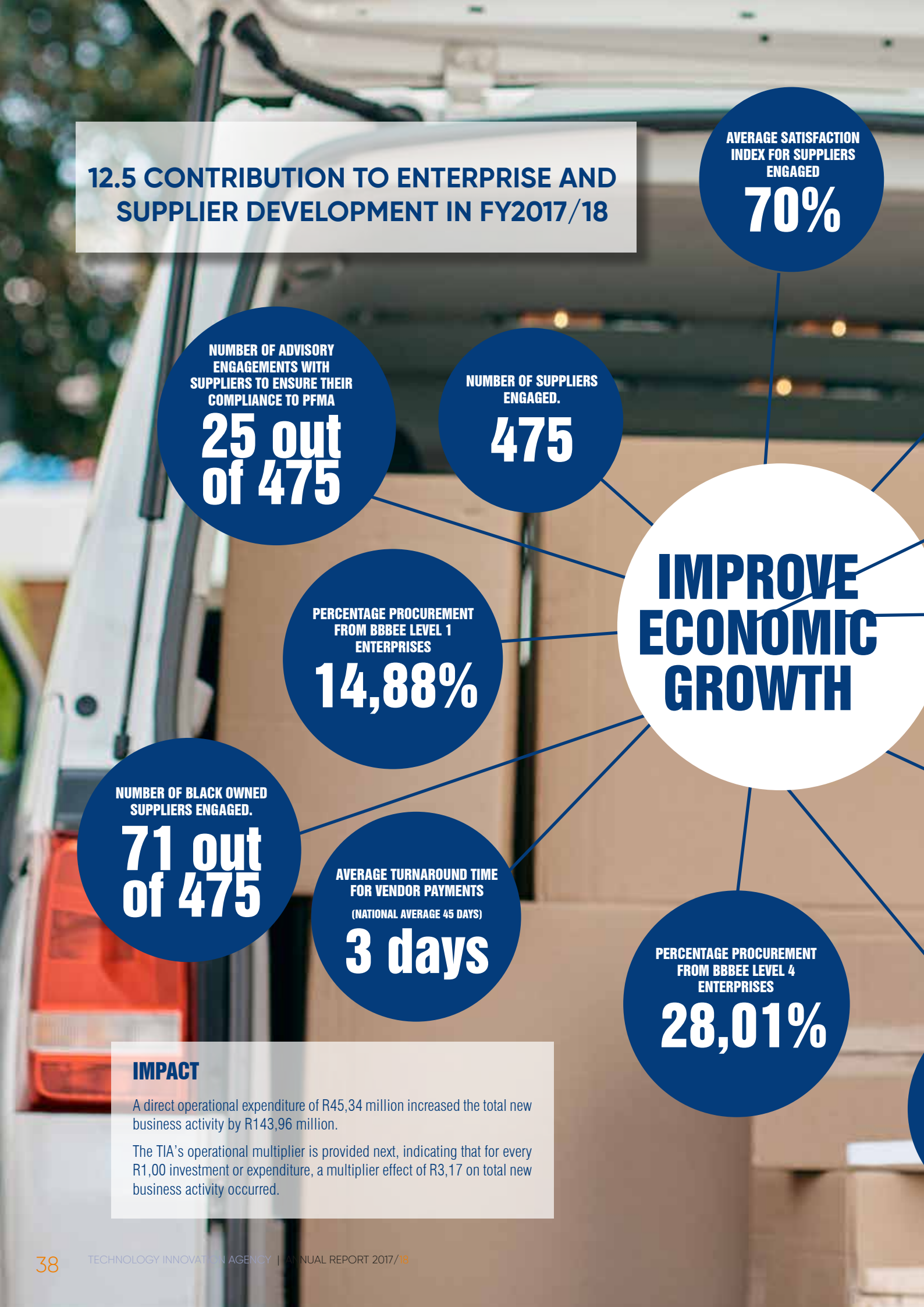
NUMBER OF PROJECTS REACHING THE MARKET

STRATEGIC PLAN FY2015/20	FY 2015/16	FY 2016/17	FY 2017/18
51	9	21	19

NUMBER OF SEED FUND PROJECTS FUNDED

STRATEGIC PLAN FY2015/20	FY 2015/16	FY 2016/17	FY 2017/18
600	275	123	58

12.5 CONTRIBUTION TO ENTERPRISE AND SUPPLIER DEVELOPMENT IN FY2017/18



IMPACT

A direct operational expenditure of R45,34 million increased the total new business activity by R143,96 million.

The TIA's operational multiplier is provided next, indicating that for every R1,00 investment or expenditure, a multiplier effect of R3,17 on total new business activity occurred.

5 This refers to enterprises Level 9 onwards and those who have not had themselves assessed

13. STRATEGIC PERFORMANCE

13.1 REVIEW OF OPERATING ENVIRONMENT DURING FY2017/18

In reviewing the performance of TIA, the section below outlines the operating environment during FY2017/18 (using P.E.S.T.E.L.[7] analysis)

POLITICAL

The year witnessed escalating geo-political tensions in Europe owing to the lack of resolution regarding the Brexit negotiations. In the Middle East, new conflicts arose due to a confrontation between Saudi Arabia and Iran, causing instability in the security environment. In Sub-Saharan Africa there were changes to political leadership structures. The United States have been undergoing sweeping reforms undertaken by its current leader, President Donald Trump. This may have a direct and significant impact on South Africa as a beneficiary of US aid programmes as well as economic trade policies, e.g. AGOA.[8]

Domestically, the political environment was tenuous: the South African Council of Churches (SACC) called for a dissolution of Parliament and requested an early election. The Public Protector's State of Capture report had implicated the State President, with opposition parties calling for his resignation. Political uncertainty generally fuels policy uncertainty, with the country's national elections being two years away, the impact of the political discourse had a direct impact on GDP growth targets. Cabinet reshuffles within seven months of each other were unprecedented for the country that had been renowned on the continent for policy and political certainty. December 2017, saw the African National Congress' 54th National Elective Conference where Mr Cyril Ramaphosa was elected as President of the Party. During the 4th quarter of the financial year the State President resigned, resulting in a further Cabinet reshuffle. The impact of the political dynamics globally and locally could impact TIA in policy, strategy and funding decisions.

ECONOMIC

The global economy began showing signs of recovery during the year under review, contributing factors were strong US and Chinese economies, which are recovering from the worst period of the economic downturn. The economy in Sub-Saharan Africa remained subdued against the backdrop of recovery in commodities' prices. A major opportunity on the horizon is the African Continental Free Trade Area (AfCTFA), which intends to lower or reduce intra-African trade barriers. This requires TIA to collaborate with its African partners on a much broader scale and scope to ensure that South Africa capitalises on Africa's looming growth.

The South African economy grew at 1.13% in 2017, driven by increased activity in agriculture and trade sectors. Gross Domestic Product (GDP) per capita growth has been stagnant or low since 2014, leaving little room to reduce poverty, inequality and unemployment that continue to plague the country. Notably, unemployment remains a key challenge, standing at 26.7% in 2017 (with unemployment among the youth being even higher, close to 50%). Commodity prices were weak during the past year, remaining an important factor for South Africa's economy since it is a major exporter of raw materials. Moreover, the fiscal outlook remains challenging. To counter weak

7 PESTEL = Political, Economic, Social, Legal, Environment and Technological. (A PESTEL analysis is a framework or tool used by business/organisations to analyse and monitor the macro-environmental (external marketing environment) factors that have an impact on an organisation. The result of which is used to identify threats and weaknesses which is used in a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis.

8 Africa Growth and Opportunities Act.

revenue collections and accommodate the government's 2017 commitment to free higher education, the 2018 budget introduced new revenue measures, including a 1% increase in the Value Added Tax rate. The World Bank estimates a marginal increase in economic growth by an additional 0.1% in 2018 to realise a projected GDP of 1.4% for the year. The subdued macro-economic conditions pose a risk to TIA's ability to secure opportunities to leverage funding from third parties to support its technology development initiatives.[9]

SOCIAL

Issues of individual identity, national sovereignty, the migration crisis and cross-cultural influences dominated Western politics during 2017, as political parties therein have shifted towards a more managerial or technocratic style of politics. In Africa, issues of economic inclusion through participation continued to dominate the narrative. Poor macro-economic conditions across the continent have continued to widen the wealth divide, resulting in sustained levels of poverty and inequality. South Africa has seen progress, however, this has been slowing due to structural challenges and weak global growth since the global financial crisis of 2008. Issues relating to race, ethics, social coherence and protests dominated the narrative during 2017. The **Social Progress Index** (SPI) of 2017 ranks the country 66th out of 126 countries, which reveals that the country ranks higher in **Opportunity** (i.e. is there opportunity for people to improve their position in society?) and **Foundations of Wellbeing** (i.e. are the building blocks in place for people to improve their lives?) than in **Basic Human Needs** (i.e. does the country provide for its people's essential needs?). This stands in contradiction to the international quality of life frameworks and measures, which postulate that the basic human needs (nutrition, shelter, health, safety, sanitation and water) should be prioritised above other well-being priorities. The poor state of the health system is shown to be the main contributor to a lack of progress in the provision of basic needs of life.[10] During the year, numerous service level protests were staged as members of the communities in affected areas across the country voiced their dissatisfaction at the current poor levels administered by local government.[11]

South Africa remains a dual economy with one of the highest inequality rates in the world, perpetuating both inequality and exclusion. The poorest 20% of the South African population consumes less than 3% of total expenditure, while the wealthiest 20% consumes 65%.[12] The underperformance of the economy has heightened the risk of social discontent in which TIA must demonstrate how it can accelerate its strategic programmes to realise the goals set out in the NDP in contributing to an improved quality of life for the marginalised communities in South Africa.

TECHNOLOGICAL

On the global front, the emerging technology domain continued to draw much attention from leading technology firms, governments and civil societies owing to the scale and pace in which change is occurring. Artificial Intelligence, Blockchain, the Internet of Things, Cloud Computing and Virtual Reality found expression in the new capabilities that were expressed in terms of technological products, processes and services that found themselves progress to the market during FY2017/18. In terms of the evolution of technology eco-systems according to the National Advisory Council on Innovation's (NACI) Science Technology and Innovation (STI) indicators for FY2016/17, the report found that there are expressions of a World in Transition[13] in terms of socio-technical change (which, when defined, refers to interaction between human behaviour and complex technology systems). In relation to this, four main interconnected themes dominated the discourse on the evolution of technology eco-systems. These are:

a. mega trends that are evidenced in the emergence of megacities, the effect of climate change on the environment, unresolved geo-political tensions that

9 World Bank 2018 Overview of South African economy- http://www.worldbank.org/en/country/southafrica/overview#3

10 National Advisory Council on Innovation (NACI) STI indicators for FY2017/18

11 IRMSA Risk Survey 2017

12 World Bank 2018 Overview of South African economy- http://www.worldbank.org/en/country/southafrica/overview#3

13 National Advisory Council on Innovation (NACI) STI indicators for FY2016/17

are escalating the possibilities of new wars, amongst others;

b. arising grand challenges that appear similar across the world, with the need to address poverty, hunger, health and well-being, quality education and gender equality, amongst others;

c. transforming innovations that are constantly evolving, leading to disruption of market systems and is beginning to impact on business models and supply chains, and;

d. deep transitions in multiple socio-technical systems, i.e. there are fundamental changes occurring in the social structure of the world which, together with the techno-economic framework and the shifts occurring in both, have become more interconnected.

During the year, there were various indicators that the transition is gaining momentum, however, the impact needs to be managed proactively as this could affect the performance of global economies in which South Africa is very much an integral player. As a funder and enabler of technology development, TIA must be agile in preparing for the transitions to enable the country to position itself competitively in response to these changes.

The 2017 Global Innovation Index Report, which measures the innovation performance of 127 countries and economies using a scale of 81 indicators and scores each country based on innovation inputs and outputs, revealed that South Africa's ranking dropped to 57th (out of 127 countries) from 54th (out of 128 countries) in 2016. This was mainly attributed to declining innovation input performance in terms of human capital, research and the institutions. This is despite a moderate improvement in the innovation outputs in terms of knowledge, technology outputs and creative outputs.[14] This further outlines the case for the implementation of TIA's "glass pipeline" initiative, which aims to promote porous boundaries between the researchers and the market through enabling a singular view of innovation activity in the NSI. This augurs with the draft STI White Paper, which argues for improving coordination across research institutions and funding agencies.[15]

ENVIRONMENTAL

There has been an emergence of a cluster of interconnected environment-related risks – including extreme weather events, climate change and water crises. During FY2017/18, this was evidenced in the case of Cape Town, where the change in climatic patterns led to a water crisis affecting four million people in the region. Overall, the environmental resources continued to be under strain owing to unabated levels of pollution, degradation and over exploitation.

During the past year, the following instance were observed;[16]

a. Air pollution continued to be a problem as the rise in levels of toxicity, are a cause for concern. Exposure to air pollution results in numerous respiratory health problems in people and the effects are more pronounced among the elderly, young and also more evident in people with existing respiratory health conditions. The main pollution sources are industrial and mining related emissions, domestic fuel burning, burning of waste and vehicle carbon emissions.

b. Even though waste collection services have improved significantly in recent years, there are still areas in the country where access to these services needs to be improved. Data collection, reporting on waste volumes and management of increasing waste volumes have proven problematic. There is also an urgent need to address the licensing status of landfill sites and, where licenses are in place, compliance to license conditions must be enforced.

c. Land degradation and soil erosion still remain serious challenges, undermining the productive potential of the land. Degradation continues to threaten the local resource base upon which rural communal livelihoods depend.

d. The natural resources (wildlife, fauna and flora) are being exploited in an unsustainable manner, threatening the functioning of eco-systems. This may undermine social and economic development. The key drivers of bio-diversity loss include unsustainable use, illegal harvesting, poaching and unequitable sharing of benefits.

14 National Advisory Council on Innovation (NACI) STI indicators for FY2017/18

15 STI White Paper Chapter 3

16 Department of Environmental Affairs Annual Performance Plan FY2017/18

e. Acid Mine Drainage (AMD) has become a major challenge in South Africa, especially on the Witwatersrand, Gauteng.

f. Groundwater pollution and over-abstraction are serious problems in certain parts of South Africa.

g. Water quality and the health of aquatic eco-systems are declining owing to higher pollution levels around coastal metropolitan areas. The impact of pollution and reduced freshwater flow through estuaries (together with extractive pressure) lead to deteriorating environmental health. Oil spillages along the coastline, in coastal waters and on islands cause serious environmental problems, while the exploitation of marine resources continues to expand in ways that are not always predictable.

h. Some sand-mining, or sand-winning, takes place along South Africa's coastline, with much of the existing activity being undertaken illegally, making it difficult to estimate its value and impact on the environment.

The scale of the environmental degradation poses a challenge to TIA in terms of determination of the appropriate project portfolio mix for support to the development of new technologies as there is an immediate need to adopt measures that can remedy the current situation. TIA continues to ensure that its Natural Resources programme is aligned to national priorities so as to respond appropriately to the challenges faced by the country.

LEGISLATIVE

During FY2017/18, the Courts of Law Amendment Bill was approved by the National Assembly and was being considered by the National Council of Provinces. The objective of this legislation is to put a stop to abuses in the debt recovery processes which are regulated in the Magistrate's Courts Act, 1944. The Bill prohibits this type of ruthless conduct and also requires emoluments attachment orders to be issued under judicial scrutiny and no longer by clerks of the court. The Judicial Matters Amendment Bill was under consideration by the National Assembly at the conclusion of FY2016/17. The various amendments can be linked to some key targets of the NDP, namely, to ensure that all people are and feel safe, based on an independent and fair criminal justice system; social cohesion; to realise a developmental, capable and ethical state that treats citizens with dignity; and economic inclusion. The Cybercrimes and Cybersecurity Bill was also introduced into Parliament. The Bill provides a comprehensive legislative framework in a single statute in order to prevent, detect and prosecute criminal activity in cyberspace. It also provides for cross-border or international cooperation since offences of this nature invariably extend beyond national boundaries. The Prevention and Combating of Hate Crimes and Hate Speech Bill was widely distributed and made available in October 2016 for a broad public consultation process, which continued till the end of January 2017. A large number of comments were received from persons and organisations across the country and abroad. The final Bill to Parliament will encapsulate the comments received where appropriate. The Bill intends to address the increasing number and intensity of intolerable incidents that constitute criminal offences or hate speech.[17]

During the year under review, the DST continued with the drafting of the new White Paper relating to the STI landscape in South Africa. The White Paper, which is based on extensive review of the NSI, sets the long-term policy direction for the South African government to ensure a growing role for STI in a more prosperous and inclusive society. It focuses on using STI to accelerate inclusive economic growth, make the economy more competitive and improve people's everyday lives. It aims to help South Africa benefit from global developments such as rapid technological advancement and geopolitical and demographic shifts, as well as respond to the threats associated with some of these global trends.[18] Inputs were solicited from actors and sub-actors within the NSI and it is envisaged that this will be approved by Cabinet in the FY2018/19.

13.2 STRATEGIC RISK PROFILE FY2017/18

A critical process in contending with the operating environment for both the TIA Executive and the Board is the identifying of risks and developing appropriate mitigation strategies as a response. TIA employs a robust and systematic process at both operational and strategic level,

17 Department of Justice and Constitutional Development Annual Report FY2016/2017

18 Draft White Paper on STI Introduction

> **This further outlines the case for the implementation of TIA's "glass pipeline" initiative, which aims to promote porous boundaries between the researchers and the market through enabling a singular view of innovation activity in the NSI.**

which is integrated and central to its strategic planning process. A comprehensive risk management policy is in effect and supported by an organisational Risk Steering Committee which convenes on a quarterly basis to assess the risk landscape.

The Strategic Risk Register devolves into programme, sub-programme and ultimately project risk reporting levels. Oversight of the Strategic Risk Register is predominantly within the ambit of the Audit and Risk Committee (ARC) of the Board. Through the ARC, the Board determines the levels of risk tolerance for the organisation. Risk registers are maintained and managed using the BarnOwl Risk Management System. In addition, it is planned that during FY2018/19, the Internal Audit unit will provide assurance in reviewing the effectiveness of the planned controls within the risk management process.

A strategic risk analysis was undertaken during FY2017/18, in which a PESTEL analysis into the risk landscape was done. Inputs into the analysis considered the reports from the Institute of Risk Management South Africa 2017 Risk Report, Deloitte, 2017 World Economic Forum Global Risk Report, and the 2017 Allianz Risk Barometer Report. The results were tabled at the Risk Steering Committee, Exco, ARC and the Board. On approval, the Strategic Risk Register, together with the mitigation actions, were populated and managed by the TIA Executive for the remainder of the financial year. In line with international best practice, risks are detailed; comprehensively assessed on their probability, severity and the quality of the existing control environment; and managed through acceptance, transfer, avoidance or reduction measures. These measures result in residual risk scores that indicate the relative importance of the risk and facilitate assessment of progress made in addressing risks. The final register together with the resultant residual risk ratings as the end of the year are presented below.

13.3 STRATEGIC RISK SUMMARY REPORT AS AT 31 MARCH 2018

Table 1 Strategic Risk Register as at 31 March 2018

RISK NO.	RISK TITLE	LINKED OBJECTIVES	CONTRIBUTING FACTOR TITLE	CONTROL TITLE	II	IL	IR	RI	RL	RR
1.	Inadequacy of business processes.	Strategic Objective 3 - To develop an effective and efficient internal environment to successfully execute the strategy	Legacy organisational design	Review operational productivity and efficiency matrices	4,00	4,00	16,00	4,00	3,00	12,00
2.	Loss of skilled and experienced staff.	Strategic Objective 3 - To develop an effective and efficient internal environment to successfully execute the strategy	Low staff engagement levels	Staff retention schemes	4,00	4,00	16,00	4,00	3,00	12,00
3.	Not managing possible poor reputation.	Strategic Objective 1 - To provide technology development funding and support in strategic high impact areas.	Lengthy turnaround times when processing applications	Client Relationship Management programme	4,00	5,00	20,00	4,00	3,00	12,00
4.	Not managing the uncertainty surrounding political leadership.	Strategic Objective 2 - To provide thought leadership and an enabling environment for technology innovation in collaboration with other role players	Shifts in the decision-making bodies within government	Managing political transitions	5,00	4,00	20,00	4,00	4,00	16,00
5.	Poor alignment to national policies.	Strategic Objective 1 - To provide technology development funding and support in strategic high impact areas.	Review of NSI performance over the last 10 years	Organisational strategic programme mapping	3,00	4,00	12,00	3,00	3,00	9,00
6.	Poor economic conditions.	Strategic Objective 1 - To provide technology development funding and support in strategic high impact areas.	Impact of global geo-political tensions	Fiscal Management	4,00	4,00	16,00	3,00	4,00	12,00
7.	Poor management of expectation of shareholder.	Strategic Objective 2 - To provide thought leadership and an enabling environment for technology innovation in collaboration with other role players	Low levels of organisational strategic performance	Shareholder Management	3,00	4,00	12,00	3,00	3,00	9,00
8.	Poor portfolio performance.	Strategic Objective 1 - To provide technology development funding and support in strategic high impact areas.	Deficient management of legacy project portfolio	Portfolio Review	5,00	4,00	20,00	4,00	4,00	16,00

II = Inheretent Impact; IL = Inheretent Likelihood; IR = Inheretent Risk; RI = Residual Impact; RL = Residual Likelihood; RR = Residual Risk.

13.4 OVERVIEW OF STRATEGIC OUTCOME ORIENTED GOALS

Strategic outcome-oriented goals identify areas of institutional performance that are critical to the achievement of the mission. These goals focus on impacts and outcomes, but in exceptional circumstances may deal with other aspects of performance. A strategic outcome-oriented goal is a statement of intent that is specific, measurable, achievable, relevant and time-bound (SMART). TIA is currently implementing its 2015/20 Strategic Plan, which was tabled in Parliament in March 2015. To position the activities of TIA within the framework of the NDP and other DST priorities, the Strategic Plan is structured around three strategic outcome-oriented goals that have been driving the initiatives of the TIA over the past three years within the five-year strategic cycle.

These goals are as follows:

- Goal 1: To support the commercialisation of technological innovations;
- Goal 2: To increase infrastructure access for technology development; and
- Goal 3: To stimulate an agile and responsive NSI.

Performance against these strategic outcome-oriented goals in FY2017/18 is articulated in the following.

13.4.1 PROGRESS IN ACHIEVING THE STRATEGIC OUTCOME-ORIENTED GOALS

The efforts of all the programmes in TIA are directed towards the realisation of the above-mentioned strategic outcome-oriented goals. To date, TIA has continued to perform towards realising these goals against a backdrop of a highly fragmented NSI; insufficient policy coherence and coordination; a fluid technology landscape which is undermining the work done in managing the investment portfolio; IP leakages caused by a bureaucratic regulatory environment; slow growth rate of the economy (leading to fiscal constraints); and the lack of a private-public appetite for partnerships that can unlock risk funding for technology development and commercialisation.[19]

The progress made in achieving the goals is detailed in the following section.

GOAL 1 – SUPPORT COMMERCIALISATION OF TECHNOLOGICAL INNOVATIONS

The key objective of TIA is to support the development of ideas and research outputs from proof of concept through to demonstration and pre-commercialisation. For this purpose, TIA intends to expend R364m for various technology development projects and initiatives during the FY2018/19. This is against investment expenditure of R309m in FY2017/18 and R465m in FY2016/17. 70% of the funds invested have gone towards strengthening the innovation eco-system. TIA's performance in this regard is in direct response to the gaps identified downstream within the innovation value chain where there is insufficient capacity to commercialise innovations developed. The remaining period to the end of the strategic cycle will see the deployment of the glass pipeline initiative, which will strengthen TIA partnerships to progress innovations and leverage third party funding with key institutional and private sector funders.

INDICATOR 1,4: AMOUNT OF INCOME RECOGNISED

STRATEGIC TARGET FY2015/20	CUMULATIVE PLANNED PERFORMANCE FY2015/16 – FY2017/18	CUMULATIVE ACTUAL PERFORMANCE FY2015/16 – FY2017/18	YTD VARIANCE	STATUS
R665,3M	R363,1m	R331,6m	-R31,5m	Not on track

In supporting technology development and pre-commercialisation activities the TIA aims to raise an additional R108m in FY2018/19. This is against an amount of R67m realised in FY2017/18 and R110m in FY2016/17. The reduction in funding raised is attributed to poor economic conditions that have led to a reduction in the funding available. Activities herein for the remaining period have been streamlined and targeted interventions have been planned to ensure that the funds are raised to support innovations.

19 Draft White Paper on STI Chapter 1

> In supporting technology development and pre-commercialisation activities TIA aims to raise an additional R108m in the FY2018/19.

INDICATOR 1,2: NUMBER OF INNOVATION PROJECT OUTPUTS TAKEN UP IN THE MARKET

STRATEGIC TARGET FY2015/20	CUMULATIVE PLANNED PERFORMANCE FY2015/16 – FY2017/18	CUMULATIVE ACTUAL PERFORMANCE FY2015/16 – FY2017/18	YTD VARIANCE	STATUS
51	28	49	+21	Exceeded

In FY2017/18, TIA facilitated the commercialisation of 19 innovations compared to 21 in FY2016/17. The slight decrease represents the maturity level of the TIA portfolio whereby projects within the portfolio have all reached technology demonstration phase. Despite the decline, the performance reflects an active demand for innovations supported, whilst TIA has exceeded the year-to-date strategic target.

INDICATOR 1,1: NUMBER OF TECHNOLOGIES, PROCESSES OR SERVICES ADVANCING BY TWO OR MORE TRL LEVELS

STRATEGIC TARGET FY2015/20	CUMULATIVE PLANNED PERFORMANCE FY2015/16 – FY2017/18	CUMULATIVE ACTUAL PERFORMANCE FY2015/16 – FY2017/18	YTD VARIANCE	STATUS
102	44	92	+48	Exceeded

Of TIA's total portfolio funded in FY2017/18, 34 projects advanced by two or more Technology Readiness Levels (TRLs) with some reaching the demonstration stage. This is an increase of three from the 31 projects realised in FY2016/17 and 27 over FY2015/16. The Seed Fund Programme was again the key contributor to the results attained. The moderate increase is attributable to the level of maturity of the portfolio. To improve on this, calls for receipt of applications have been scheduled in FY2018/19 to ensure that there is a steady pipeline of projects for consideration. For the remaining strategic period, greater emphasis will be placed on improving the quality of the portfolio through strengthened internal processes that support the progression of ideas.

GOAL 2 – INCREASE INFRASTRUCTURE ACCESS FOR TECHNOLOGY DEVELOPMENT

INDICATOR 2,1: NUMBER OF KNOWLEDGE INNOVATION PRODUCTS PRODUCED AS A RESULT OF TIA FUNDING AND SUPPORT PROGRAMMES

STRATEGIC TARGET FY2015/20	CUMULATIVE PLANNED PERFORMANCE FY2015/16 – FY2017/18	CUMULATIVE ACTUAL PERFORMANCE FY2015/16 – FY2017/18	YTD VARIANCE	STATUS
350	159	238	+79	Exceeded

TIA provides infrastructure services for technology development through its network of 18 Technology Stations and eight Technology Platforms. These facilities provide technical engineering and scientific support to innovators, entrepreneurs, SMMEs and large industry companies that require research, analytical and testing services to either validate or progress their technologies though the value chain. In FY2018/19, TIA is planning to support a total of 91 technologies and knowledge-innovation products such as prototypes, patents, technology demonstrators and technology transfer packages from these facilities. FY2017/18 saw 98 new knowledge products being developed, an increase of 53% from FY2016/17, which saw 64 knowledge products developed. The continued investment into innovation enablement infrastructure and seed funding for Higher Education Institutes (HEI) and SMMEs has contributed to the progress made herein. Each of these supported a range of projects to develop technology demonstrators in various scientific and technological disciplines. Plans are under way to increase the operating capacity of the technology infrastructure and aligning these closer to industry.

INDICATOR 2,3: NUMBER OF SMALL, MEDIUM, AND MICRO ENTERPRISES RECEIVING TECHNOLOGY SUPPORT

STRATEGIC TARGET FY2015/20	CUMULATIVE PLANNED PERFORMANCE FY2015/16 – FY2017/18	CUMULATIVE ACTUAL PERFORMANCE FY2015/16 – FY2017/18	YTD VARIANCE	STATUS
14 200	7 000	7 258	+258	Exceeded

The Technology Station Programme (TSP) has continued to deliver effective technology support services to SMMEs, particularly with regards to product and process improvements, prototype development and technology absorption services. Reflecting on the performance of the Programme during FY2017/18, it can be noted that a total of 2 800 SMMEs were supported in comparison to 2 261 in FY2016/17. From those supported FY2017/18, 1 475 were historically disadvantaged individuals (HDIs);[20] 1 092 were youth; 794 were African women and 11 were disabled. The continued performance of these programmes highlights the continued demand for such services. For the remaining strategic period additional technical services would be added to the overall service mix in to order to bolster the level of expertise offered to SMMEs.

GOAL 3 – STIMULATE AN AGILE AND RESPONSIVE NATIONAL SYSTEM OF INNOVATION (NSI)

Over the strategic period to date, TIA has made concerted efforts to align itself with key partners in the NSI. Much progress has been made with respect to embedding its positioning and role within the NSI through multiple engagements with the main and sub-actors within the eco-system. Key among these is the knowledge-generating community of HEIs, science councils and industry partners that support early-stage technology innovation activities. TIA has worked closely with the NIPMO, NACI, Centre for Public Sector Innovation (CPSI), and SEDA in formulating initiatives that lead to unlocking the organisation's value proposition.

1.3: AMOUNT OF ADDITIONAL FUNDING ATTRACTED INTO TIA'S PORTFOLIO

STRATEGIC TARGET FY2015/20	CUMULATIVE PLANNED PERFORMANCE FY2015/16 – FY2017/18	CUMULATIVE ACTUAL PERFORMANCE FY2015/16 – FY2017/18	YTD VARIANCE	STATUS
R551M	R247 m	R397,3m	+R150,3m	Exceeded

TIA's portfolio also continued to attract interest from third parties who have invested a total of R117,2m in FY2017/18 in comparison to R182,2m in FY2016/17. This represents a 36% decrease from the previous financial year, which is attributable to the current economic conditions that have led to follow-on investors being risk averse. For FY2018/19, TIA plans to raise R147m to augment the funding availed in support of funded projects through mobilisation of strategic partnerships across the innovation value chain over the remainder of the strategic period.

2.5: NUMBER OF TECHNOLOGY INNOVATION INITIATIVES UNDERTAKEN BY TIA

STRATEGIC TARGET FY2015/20	CUMULATIVE PLANNED PERFORMANCE FY2015/16 – FY2017/18	CUMULATIVE ACTUAL PERFORMANCE FY2015/16 – FY2017/18	YTD VARIANCE	STATUS
124	44	152	+108	Exceeded

TIA participated in various thought leadership initiatives to inform the national discourse on innovation. For FY2017/18, over 69 strategic engagements were undertaken which represent an increase of 23% in comparison to 56 in the previous financial year. The continued increase in activity is a result of concerted efforts to position TIA as an innovation partner within the broader NSI. The technology landscape is largely fluid and sustained dialogue is needed in ensuring that stakeholders are apprised to the latest developments therein.

Despite the decline, the performance reflects an active demand for innovations supported, whilst TIA has exceeded the year-to-date strategic target.

20 Also referred to s Previously Disadvantaged Individuals (PDIs)

13.5 THE FY2017/18 ORGANISATIONAL PERFORMANCE AGAINST KEY PERFORMANCE INDICATORS

The achievement of TIA's strategic objectives occurs primarily through the collaborative structure of the Innovation Funding and Pre-Commercialisation Support (IFPCS) Division or Sub-programmes and the Innovation Enabling Support (IES) Strategic Programmes. Collectively these two strategic programmes provide support to new technological innovations up to pre-commercialisation.

TIA's overall performance against its Key Performance Indicators (KPIs), as contained in its Annual Performance Plan (APP), resulted in an achievement of 85% when measured against the 26 KPIs, of which four could not be met due to various operational challenges. The tables below elaborate TIA's performance against its strategic objectives:

STRATEGIC OBJECTIVE 1: TO PROVIDE TECHNOLOGY DEVELOPMENT FUNDING AND SUPPORT IN HIGH IMPACT AREAS.

Table 2 Performance against its Strategic Objectives 1

KEY PERFORMANCE INDICATOR (KPI)		TARGET	ACHIEVED	DEVIATION	COMMENTS
1.1	Number of technologies, processes or services advancing by two or more TRL levels.	26	34	+8	The overachievement is due to a contribution from the Seed Fund Programme (SFP) that saw projects funded in previous years reaching maturity during FY2017/18. IFPCS Division also reported traction on projects such as: • Agriculture: Beochic Nautracutical Broiler, iBatech, Biostimulant Product and a project with the Sugar Milling Research Institute. • Natural Resources: Green Iron Technology, CMTI, One step reactor. • Health: MMV390048FIH.
1.2	Number of innovation project outputs taken up in the market.	10	19	+9	The overachievement is due to contributions from the Seed Fund Programme, Technology Innovation Cluster Programme (TICP) and the Technology Platform Programme (TPP). Projects within IFPCS completed their technology development and were taken up in the market. Examples of these include: • Agriculture: Future Fynbos registering breeding rights for four new strands for fynbos. • ICT: Custos Media and Cognitive Systems being able to obtain expressions of interest by business partners to implement their solution.

KEY PERFORMANCE INDICATOR (KPI)		TARGET	ACHIEVED	DEVIATION	COMMENTS
1.3	Amount of additional funding attracted into TIA's portfolio.	R113m	R117m	+R4.0m	TPP attracted R54m of the total additional income to fund operations and research activities. The Innovation Skills Development Programme (ISD) partnered with Microsoft and Telkom on the Next Gen 100 TechNvst project, both parties bringing additional funding to the project. Projects within IFPCS and TICP also reported additional funding attracted through investment from interested parties, co-funding by partnering institutions or inventors.
1.4	Amount of income received/recognised*	R142m	R67m	-R75m	The entity committed to a very stretched target compared to FY2016/17. The hub-and-spoke model will be integrated in FY2018/19. An optimistic target coupled with economic pressures resulted in lower than expected income. The entity had limited cash reserves, as opposed to the previous financial periods for funding. New programmes were secured from DST such as the Innovation for Inclusive Development Programme, the Forestry Genomics Programme and the Agriculture Bio-economy Programme. The full integration of these programmes will occur in the FY2018/19. The entity amended its income recognition criteria to align with that of the Generally Recognised Accounting Practices and this amendment was implemented in Q3 of the year under review. The entity received a total of R116 087 000 cash during this financial year, most which will be disbursed in FY2018/19.

STRATEGIC OBJECTIVE 2: TO PROVIDE THOUGHT LEADERSHIP AND AN ENABLING ENVIRONMENT FOR TECHNOLOGY INNOVATION IN COLLABORATION WITH ROLE PLAYERS

Table 3 Performance against its Strategic Objective 2

KEY PERFORMANCE INDICATOR (KPI)		TARGET	ACHIEVED	DEVIATION	COMMENTS
2.1	Number of knowledge innovation products produced as a result of TIA funding and support programmes, consisting of:	83	98	+15	The over-achievement can be attributed to a more mature reporting practice instilled at our Technology Stations and Technology Platforms, showing more patents registered, prototypes developed and technology demonstrators completed.
	2.1a Prototypes Developed	42	46	4	
	2.1b Intellectual Property	9	10	1	
	2.1c Technology demonstrators developed	30	35	5	
	2.1d Technology transfer packages	2	7	5	
2.2	Number of knowledge innovation products produced by TIA-supported programmes receiving third party funding.	27	31	+4	Through the innovation enabling environment and the networks built within the NSI, the entity is proud to report that projects supported through the TICP, TPP and TSP could secure additional funding.
2.3	Number of SMMEs receiving technology support.	2 800	2 800	0	The TIA's technology enabling and support environment focusses on creating a vibrant eco-system where SMMEs can tap into support they require to build successful businesses. In the next financial year, specific emphasis will be put on supporting PDI owned SMMEs and enhancing investment in youth.
2.4	Number of PDI owned SMMEs assisted as a percentage of total projects supported, receiving funding, support and/or technology services from TIA.	65%	54%	-11%	
2.5	Number of technology innovation initiatives (conference papers, presentations and posters, policy recommendations, panel discussions, position papers, publications, think tanks; relating mainly to keynote addresses) undertaken by TIA.	31	73	+42	TIA remains very focused to be the Innovation Thought Leader in the country. It has spent a significant amount of time to enhance thought leadership within the NSI, working in collaboration with other role players both locally and internationally. Further emphasis was given to the Africa Initiative and interaction with HEIs and science councils.
	2.5a Conference papers	1	1	0	
	2.5b Presentations	10	32	22	
	2.5c Policy recommendations	1	1	0	
	2.5d Panel discussions	7	9	2	
	2.5e Position papers	1	2	1	
	2.5f Publications	1	14	13	
	2.5g Think tanks	9	13	4	
	2.5h Keynote addresses (speeches)	1	1	0	

STRATEGIC OBJECTIVE 3: TO DEVELOP AN EFFECTIVE AND EFFICIENT INTERNAL ENVIRONMENT TO SUCCESSFULLY EXECUTE THE STRATEGY

Table 4 Performance against its Strategic Objective 3

KEY PERFORMANCE INDICATOR (KPI)		TARGET	ACHIEVED	DEVIATION	COMMENTS
3.1	Investment approval turnaround time.	16 weeks	27 weeks (YTIP)	+11 weeks	This objective was not met. TIA has embarked on a work-study to streamline its processes and reduce our turnaround time by simplifying its processes and supporting stakeholders better. A predictive call process will be implemented in 2018/19.
3.2	Improved adequacy and effectiveness of the control environment.	ISO 9001 Certification	ISO 9001 Certification	0	TIA's ISO certification, achieved at its first attempt, was a significant achievement in developing TIA into a national competence.
3.3	Amount of funds utilised for projects and programmes as a percentage of the total actual expenditure.	70%	66%	-4%	With limited cash resources for FY2017/18, TIA was under pressure to raise additional income to attain the targeted ratio. Unfortunately, this was not possible as less income was recognised than anticipated. TIA, however, managed to contain its administrative expenditure and remain within budget.
3.4	Functional organisational structure as measured by vacancy rate.	<11%	8.1%	-2.9%	The attrition rate stabilised over the past two years, rendering it no longer a high operational risk.
3.5	Effective implementation of talent management strategy - employee engagement ratio.	3.8	3.8	0	Employee engagement is a key indicator of organisational culture and staff morale. TIA saw an improvement in employee engagement underpinned by various change management interventions , which contributed in TIA achieving its planned target.

14. PROGRAMME PERFORMANCE

14.1 TIA'S CONTRIBUTION TO THE REALISATION OF THE BIO-ECONOMY STRATEGY

The Bio-economy Strategy established by DST seeks to establish an additional economic instrument for the new economy that will, in turn, provide a basis for future growth. "Bio-economy" refers to activities that make use of bio-related innovations, based on biological sources, materials and processes to generate sustainable economic, social and environmental development. In the bio-economy, the innovation system/network, which ranges from ideas, research, development, productisation and manufacturing to commercialisation, aimed to be used to its full potential in a coordinated manner.

The vision is for South Africa's bio-economy is to be a significant contributor to the country's economy by 2030, in terms of the gross domestic product (GDP), through the creation and growth of novel industries that generate and develop bio-based services, products and innovations, with a corresponding increase in the new and existing companies that provide and utilise these solutions.

The focus areas as articulated in the Bio-Economy are namely Health, Agriculture and Industrial Biotechnology, the performance for FY2017/18 is as follows (the Industrial Bio-Tech space is still to be developed):

HEALTH

Table showing FY2017/18 key performance Indicators for Bio-Health.

DST KPI	DST KPI Description	Target Annual	Actual Annual	Comments
3a	Number of new bio-innovation projects supported (HEIs & SCs)	1	0	4 applications from HEIs and Science Councils are currently under review for 2018/19
3b	Number of SMMEs developing bio-innovations supported	1	0	Dose Dr was referred back by IAC* for resubmission
4a	Number of technologies (products, processes and services) reaching validated pilot/ prototype stage	0	0	This would be realised in the following financial year
4b	Number of bio-technologies (products, processes and services) reaching demonstration stage	1	0	The targeted projects did not reach this milestone at the expected time. We are monitoring the projects to assist them to reach this milestone sooner.
5a	Number of bio-technologies (products, processes and services) taken up in the market	1	1	The target was realised during the year
5b	Amount of third party funding attracted to the bio-innovation portfolio	R13,5m	R9,6m	Quorus Biotech (Pty) Ltd Confirmed 3rd party funding of R7m from IDC. 3rd party funding for Enzyme Technologies (Pty) Ltd and Pheroid technology projects is being facilitated.
6a	Revenues generated from the sale or licensing of bio-innovations by firms / companies	R1,6m	R2,2m	Synexa Life Sciences (Pty) paid R347K to the TIA Account for Loan repayment for Q4. The amount earned is higher than this. Quorus sold two bioreactor consoles to Intellitec (USA) for US $45K, equating to R610K. R470K orders placed by Implats to BioDx. In Q3, ET had sold product to Intofeed (R13.6K) and GreenBio (R21K).
6b	Additional revenue generated by start-ups / SMMEs commercialising bio-innovations	0	R2m	Developing mechanisms to monitor this.
7a	Amount of funds leveraged from partners to support technology diffusion	0	0	The Health Unit is developing an IKS Programme, which will enable TIA to contribute towards these KPIs.
7b	Number of technologies approved for technology diffusion	0	0	
7c	Number of communities benefiting from technology diffusion	0	0	

** IAC = Investment Assessment Committee*

AGRICULTURE

In December 2017, DST approved that one of its key strategic initiatives, which is the Agriculture Bio-Economy Innovation Partnership Programme (ABIPP), be transferred and fully managed by TIA through Agriculture (contract was signed on 8 February 2018). A total funding allocation of R46m has been made available towards implementation of the programme over a three-year period. ABIPP will focus on development of a bio-technology-based application / solution that addresses national priorities. This programme will also assist in the development of partnerships that encourage industry participation. It will enable implementation of the Agriculture Bio-Economy Strategy for period starting 2018 up to 2020. ABIPP is intended to assist with delivery and contribution towards bio-economy outcomes as envisaged in the DST strategy. The programme is divided into four Thematic Areas:

i. Grain and Oilseeds Innovation Partnership;

ii. Soybean food and nutrition programme;

iii. Aquaculture Bio-innovation programme; and

iv. Agro-processing programme.

Approved Bio-economy Agriculture funding table from FY2017/18 to FY2019/20.

Programme Funding	FY2016/17	FY2017/18	FY2018/19	FY2019/20
*Grain and Oilseeds Innovation Partnership		R7,8m (additional R5,7m - wheat breeding platform - DST contract in place)	R13,5m (wheat breeding platform funding included)	R13,5m
Soybean food and nutrition programme		R1,5m	R 1,6m	R1,6m
Aquaculture Bio-innovation programme	Completion of feasibility study	R2m	R2m	R2m
Agro-processing programme	Completion of feasibility study	R2,5m	R2,5m	R2,5m

Table showing FY2017/18 key performance Indicators for Bio-economy Agriculture.

DST KPI	DST KPI Description	Target Annual	Actual Annual	Comments
3a	Number of new bio-innovation projects supported (HEIs & SCs)	1	8	There are 4 projects - HEIs and 4 projects - SCs currently being supported.
3b	Number of SMMEs developing bio-innovations supported	1	4	There are 4 projects - SMEs currently being supported.
4a	Number of technologies (products, processes and services) reaching validated pilot / prototype stage	0	0	The targeted projects did not reach this milestone at the expected time.
4b	Number of bio-technologies (products, processes and services) reaching demonstration stage	1	2	Future Fynbos - Total of 4 x South African PBR (Plant Breeding Rights) being granted. Beonics (Pty) Ltd reached demonstration level with the second product ACT 36 registration.
5a	Number of bio-technologies (products, processes and services) taken up in the market	1	2	MEP – project entered into a Technology Evaluation Agreement with potential customer, Quantum Foods. AgriProtein – eThekwini Municipality contract on BSF technology.
5b	Amount of third party funding attracted to the bio-innovation portfolio	R15m	R10,2m	Point of Care received R1m from SANbio / Biofisa. Additional funding of R6,2m and R1,7m received by AgriProtein in an agreement to be concluded with Asian Partner and eThekwini Municipality respectively. NB: An investment of R5,5m attributed to Mabu sale of shared to Damali Holdings has been reversed due defaulting on the agreement.
6a	Revenues generated from the sale or licensing of bio-innovations by firms / companies	R4m	R5,3m	Loan Settlement from Xsit of R5,3m.
6b	Additional revenue generated by start-ups / SMMEs commercialising bio-innovations	0	0	Still working on developing mechanisms to monitor this.
7a	Amount of funds leveraged from partners to support technology diffusion	0	0	The Agriculture Unit is busy with implementation plan for the Agriculture Bio-Economy Programme to enable contribution towards these KPIs.
7b	Number of technologies approved for technology diffusion	0	0	
7c	Number of communities benefiting from technology diffusion	0	0	

14.2 INNOVATION FUNDING AND PRE-COMMERCIALISATION SUPPORT (IFPCS)

The IFPCS Programme supports the development and exploitation of technological innovations by enabling and facilitating the conversion of technology ideas into enterprises. This is done by funding the development of technology and the preparation of the technologies developed for commercialisation or market uptake. By investing in these innovations TIA is harnessing science and technology for economic growth.

IFPCS' sub-programmes strive to de-risk technological innovations as they mature. The maturity of these innovations is measured through the Technology Readiness Levels (TRL)[21] scale. Financial support is provided through the Technology Development Fund (TDF), for technologies that require further development or the Commercialisation Support Fund (CSF) for technologies that have been demonstrated but still require funding support to enter and participate in the market (i.e. commercialisation).

All funded projects are monitored during and after development and are further provided with non-financial support as determined by the needs of each project. Non-financial support may include but is not limited to linking TIA funded companies with further funders, such as the Industrial Development Corporation (IDC), that can provide support regarding activities that are outside the scope of TIA's mandate.

21 Technology Readiness Levels (TRLs) is a measurement system that supports assessments of the maturity of a particular technology and the consistent comparison of maturity between different types of technology. It has a scale of 1 to 9 with TRL 1 being basic research and TRL 9 commercialisation.

14.2.1 ADVANCED MANUFACTURING

The Advanced Manufacturing sub-programme supports TIA's vision by building a portfolio of quality projects involving technologies in advanced manufacturing that contribute to transforming South Africa's manufacturing industry into a competitive, high-tech and high value creation industry. The projects that are chosen, align with the government's national priorities for advanced manufacturing and are managed to ensure the best chances for successful commercialisation that will contribute to an inclusive and dynamic economy as required by the NDP 2030.

PROGRAMME PERFORMANCE

Advanced Manufacturing undertook a "Pipeline Development Roadshow". This entailed a great effort into deal sourcing with approximately 30 interactions across the country with higher education institutions, science councils, incubators, private companies and individuals. These events were a mixture of indabas, imbizos, conferences and pitching sessions and had the impact of both awareness creation and deal sourcing as reflected by the number of new applications that are set out in following table. The priority for the new year is to grow the pipeline further and specially to convert more applications into approved and funded projects.

Novelquip Pro-Plant 1 during field testing.

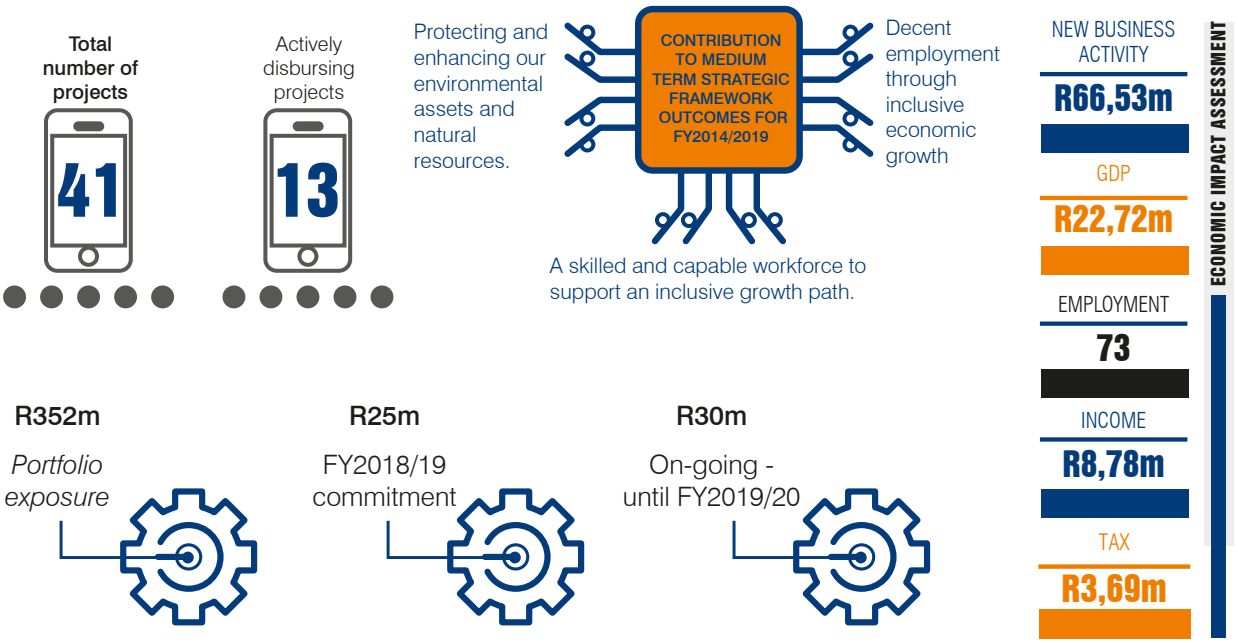
PROJECT **HIGHLIGHTS**

NOVELQUIP FORESTRY MECHANISED PLANTING TECHNOLOGY

"As the company's core product is undergoing development and has not yet gained market traction, it was extremely difficult for the business to attract commercial funding. TIA's investment helped the company in attracting co-funding from the IDC. Without TIA's support, Novelquip may not have survived as a company and a valuable opportunity for job and wealth creation in a niche sector may have been lost for South Africa."

– Stephanus Viljoen, CEO, Novelquip Forestry

> **"The NDP 2030 states that it is important to develop consistent, efficient and effective strategies to support growth with job creation and equity. Advanced manufacturing can contribute to this growth."**



A mechanised forestry planting technology, developed by Novelquip Forestry (Pty) Limited, is making huge strides internationally in the forestry sector. The technology offers globally unique plantation establishment systems. The company's flagship product, known as the ProPlant, is a world first, fully mechanised and modernised tree-planting machine complete with 'precision agriculture' technologies that allow foresters to make operations more productive, efficient and environmentally friendly. The solution combines five of the operations (soil preparation, gel/water application, fertiliser application, seedling planting and weedicide application) that are currently performed separately, into one safe, cost-effective solution. The ProPlant significantly reduces costs and increases yields.

Novelquip Forestry is an excellent case study of how different government funding institutions like the IDC and TIA can complement one another and work together with industry to commercialise South African innovations for the international market. Through collaboration between the IDC and TIA, Novelquip Forestry has been enabled to strategically align itself with Fibria Celulose - Brazil, one of the world's largest pulp producers, to expedite technology validation and market entry of this South African born innovation.

The total funding committed by TIA is R12,3m while the technology progressed from TRL 4 to 6. Twelve jobs have been maintained while an additional two jobs have been created.

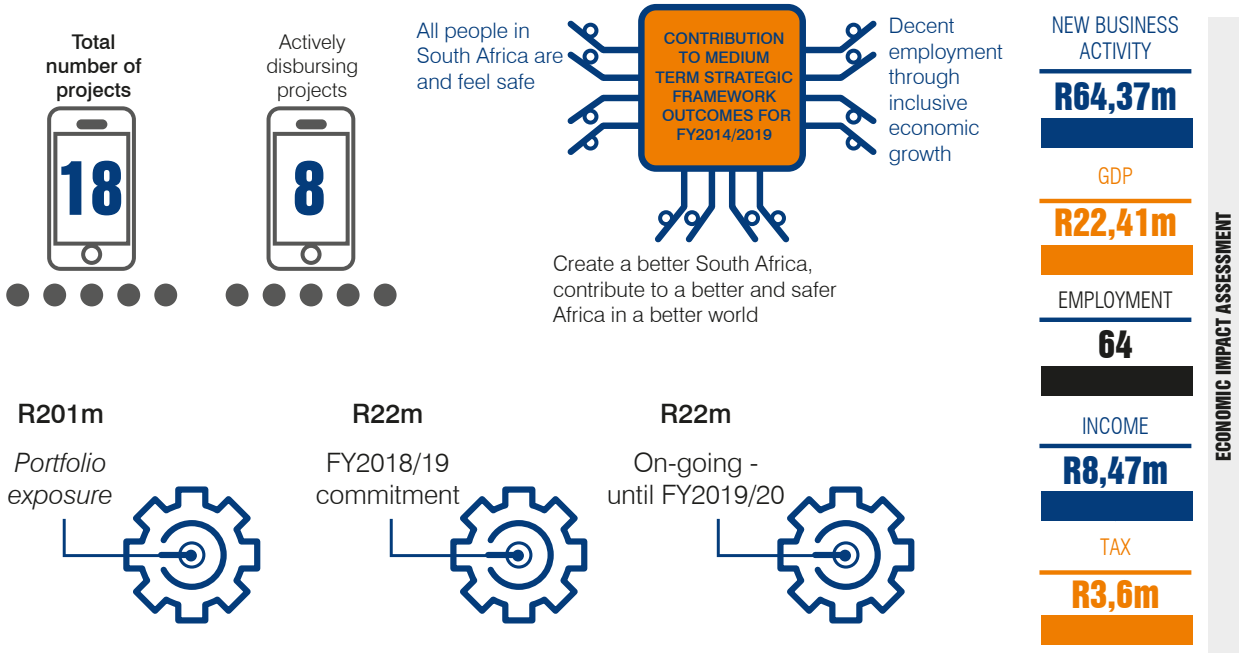
14.2.2 ENERGY

The Energy sub-programme supports the development of an innovative, competitive and sustainable energy industry that supports South Africa's transition to a low carbon economy. A total amount of R17,6m was disbursed during FY2017/18 to advance various technology innovations that will have an impact on the energy sector. An amount of R5,9m was disbursed to SAMAC Engineering (Pty) Ltd, a 100% youth and black-owned company.

SAMAC's projects involve the development of a thermal energy storage technology for Heating, Ventilation, and Air Conditioning (HVAC) systems which can reduce electricity costs for air conditioners. In the process of developing this technology, the company, through TIA funding managed to create three jobs for historically disadvantaged individuals during FY2017/18.

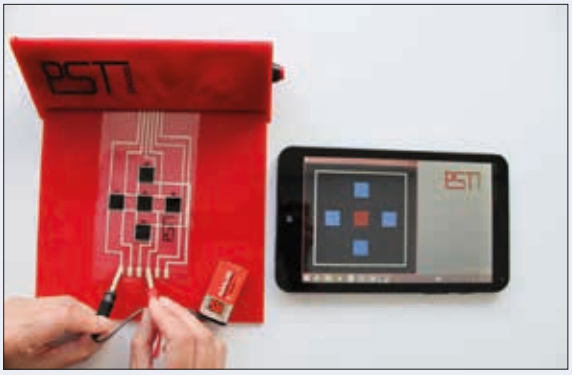
This will result in the development of engineering skills required in the HVAC sector and addresses the triple challenges of poverty, inequality and unemployment and ultimately the improvement of lives.

> **"The NDP 2030 includes the vision of urban development that is more compact and energy efficient and includes the prospect that there will also be no more unconstrained consumption of our natural resources in the low-carbon economy of the future."**



PROJECT **HIGHLIGHTS**

PST SENSORS (PTY) LTD



Beyond temperature sensing solutions, PST Sensors has developed the Heater-Sensor Stage, which combines a new generation of printed heating elements with its temperature sensing capability.

"PST Sensors has a long history with TIA since its inception, having grown out of a TAP project supported by the former Innovation Fund. As well as the agency providing funding to UCT for the initial development of the technology from 2006 to 2010, and later a loan to the company for intellectual property protection in 2015 and 2016. Key members of the TIA staff have over the years been proactive in assisting us with finding, and negotiating with equity investors, and with our handling our transition out of the university environment. These have at times been difficult relationships, notwithstanding TIA's own restructuring over the same period, but PST Sensors would not be where it is today without TIA having been there at the beginning.

PST Sensors has a unique printed silicon technology, invented in South Africa, which was developed to technological readiness with the support of TIA, and the Innovation Fund before it. While funding from the Innovation Fund allowed the original team of academics and students to develop this technology, it was the newly formed TIA which facilitated discussions with players in the private sector which enabled us to develop the business model for the company, and ultimately obtain the first round of equity funding from the IDC in 2015. An important aspect of these discussions was the move away from the original technical goals of the R&D project, to further development and innovation in, and commercialisation of, the unique temperature sensing features of the technology. Post TIA involvement, a second round of equity funding in 2017 has enabled us to rapidly expand the innovation and the commercialisation of the sensing technology into the IoT space, with worldwide customer driven applications in the healthcare, automotive, energy, minerals and manufacturing sectors."

- David Britton PST Sensors

PST Sensors is a spin-off company from the University of Cape Town (UCT) which has been supported by TIA to develop printed electronics and temperature sensing technology. As diverse as the sectors in which temperature information is essential are, so are the requirements to determine and convey this information. Traditional temperature sensors either provide imprecise or inaccurate information because of poor thermal coupling due to the small footprint and undesirable shape of the sensors as well as self-heating. These disadvantages are overcome by the low power consumption and low thermal mass of PST Sensors technology.

The company has attracted interest from the IDC who has committed funding to the amount of R15m to enable PST Sensors to upscale and commercialise its technology. The receipt of further funding by PST Sensors is considered a significant milestone whilst highlighting the role of TIA as not just an active funder but also a connector. It also highlights the co-operation that exists among different funders in the country. The project should facilitate economic growth and spin-offs.

14.2.3 AGRICULTURE

The Agriculture sub-programme contributes towards the development of high growth, high impact technologies, products and services that result into a competitive, broad-based, inclusive, growing and sustainable agricultural sector in South Africa. The programme contributes towards the NDP goals, i.e. the reduction of inequality, food insecurity and poverty and unemployment in South Africa while enhancing the environment.

PROGRAMME PERFORMANCE

In December 2017, DST approved the transfer of the Agriculture Bio-Economy Innovation Partnership Programme (ABIPP) to TIA. ABIPP seeks to develop opportunities that focus on the development of bio-technology-based applications/solutions that address national priorities. This programme will also assist in development of partnerships that encourage industry participation. The initiatives under this programme will include a wheat breeding platform, crop protection, a soybean food and nutrition project, climate change adaption, a bio-innovation aquaculture programme and agro-processing for indigenous niche commodities. DST has approved ring-fenced funding of a total of R44,6m for ABIPP over three years. Whist the programme was transferred to TIA during FY2017/18, full implementation will commence in the next financial year.

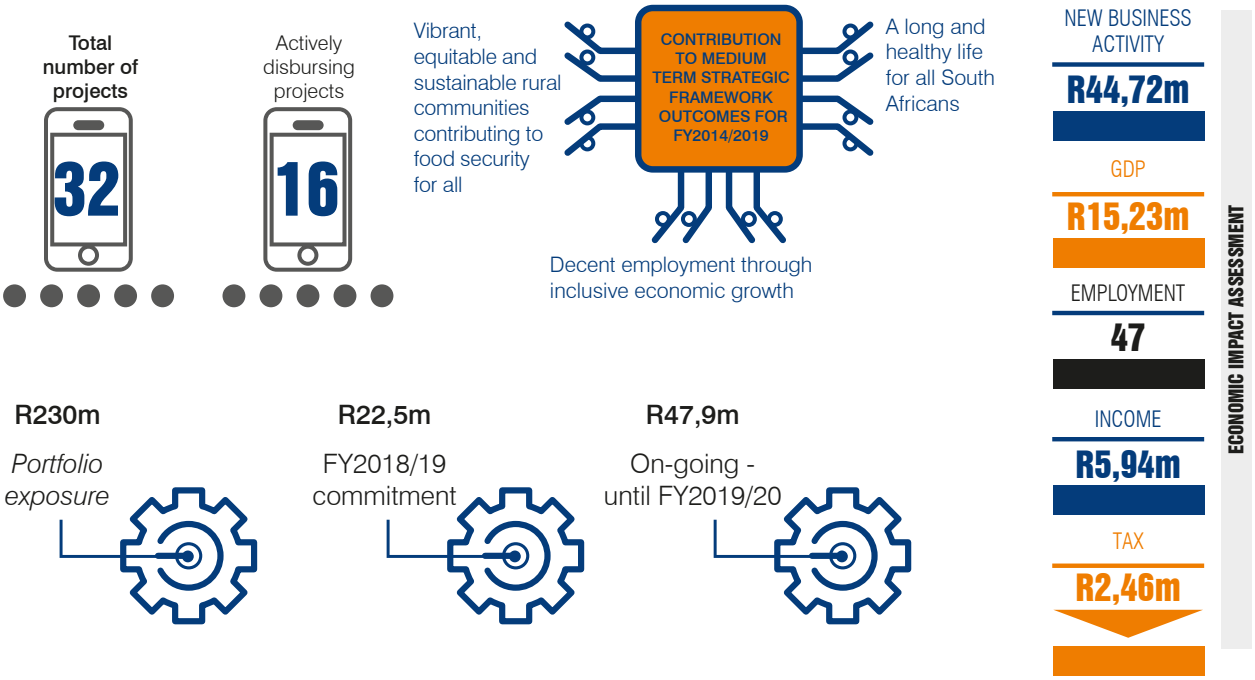
Former Minister of Science & Technology, Minister Naledi Pandor learning about the benefits of nutrient recycling.

PROJECT **HIGHLIGHTS**

AGRIPROTEIN TECHNOLOGIES (PTY) LTD

AgriProtein is a project funded by TIA and undertaken by AgriProtein Technologies (Pty) Ltd. On 12 September 2017, the production facility was launched in Philippi, Cape Town after eight years of research and development, tests and trials. AgriProtein has been supported by TIA for five years during which TIA invested an amount of R11,9m into the project. Over this period, AgriProtein moved from a small research site in Stellenbosch to a full-scale factory of about 10 000 m^2 in the heart of Philippi, an economically depressed area.

> **The NDP 2030 vision includes rising agricultural production that will create an inclusive rural economy.**



The financial support from TIA has allowed AgriProtein to invest in new capital equipment and a new production facility that employs 135 people.

AgriProtein is a leading player in a new industry known as nutrient recycling. Using fly larvae fed on existing organic waste, Agri Protein has developed and tested a new large scale and sustainable source of natural protein. Larvae are a natural food for birds in the wild and fish in streams. Their nutritional composition is as good as that of fishmeal and better than that of soya.

In over a period of three years, 100 new jobs were created, contributing to poverty alleviation and providing a positive impetus towards the green economy. The production facility has a capacity to process food waste of about 250 000 kg per day into high value protein based products that are a globally applicable local waste-to-protein solution. AgriProtein's MagMeal and MagOil are not only great natural feed ingredients, but are also environmentally game-changing as it has the capacity to divert 100 000 kg of waste organics from landfill per day and produce over 2 million kg of MagMeal per year.

Further, it is anticipated that 100 fly farms will be developed by the year 2024 at a rate of 25 farms per year. There is a large opportunity to replicate the production facility in other economically distressed areas in the country. AgriProtein has secured approximately US$85m to roll out of the technology both locally and internationally. Another full-scale plant, which will have a bigger capacity than Philippi, is being planned for Gauteng.

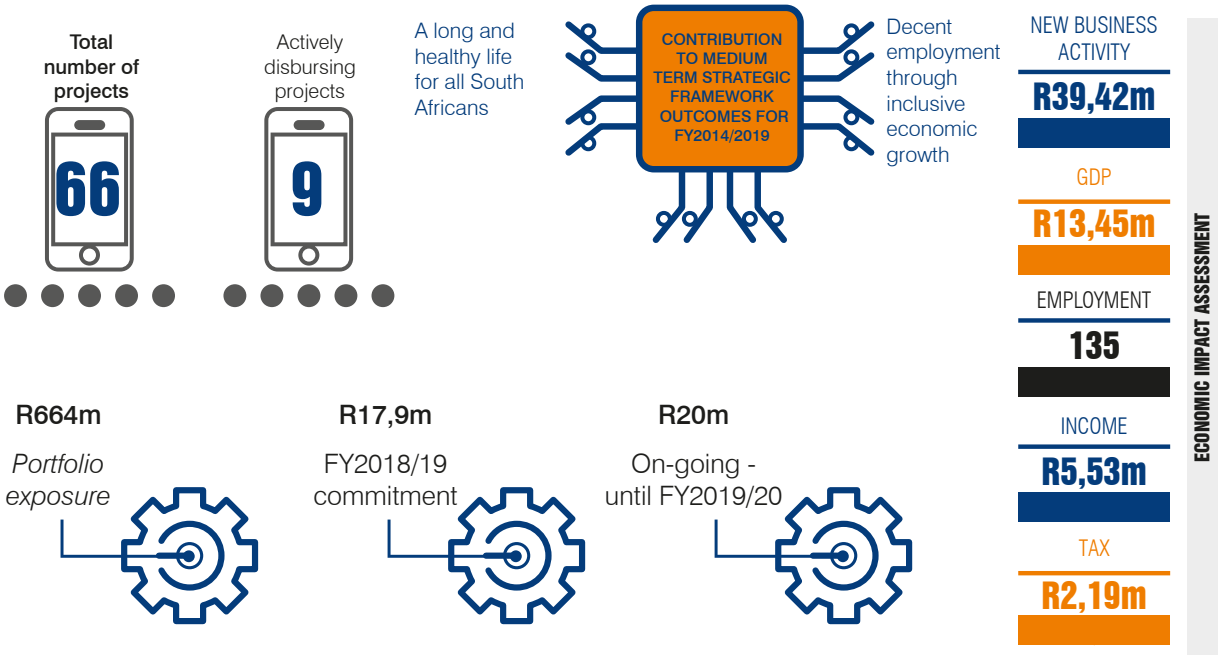
The launch of the production facility has, amongst others, been applauded by the Minister of Science and Technology, as a successful initiative that addresses the triple challenges of poverty alleviation, employment creation and reducing inequality.

14.2.4 HEALTH

The Health sub-programme enhances South Africa's global competitiveness in the health arena and delivers socio-economic value through technological innovation in healthcare products and services addressing the prevention, diagnosis and treatment of priority diseases in South Africa. The priority diseases that have been identified as having the greatest impact on public health and quality of life in South Africa and Sub-Saharan Africa, include HIV/AIDS, tuberculosis (TB), malaria, respiratory diseases, cancer and non-communicable diseases such as diabetes and cardiovascular disease. Improved healthcare products to treat these diseases will have a positive impact on the quality of life of many South Africans.

The Health sub-programme stimulates and supports the development, registration, manufacture and commercialisation of products and services which address the healthcare needs of the country. The focus is on facilitating the translation of South Africa's knowledge resources into sustainable health technology based commercial opportunities by providing risk funding and catalysing partnerships between SMMEs, industries, universities and science councils to support health specific innovations that will contribute to a quality health care system for all.

> Stimulating technological innovation in healthcare products will contribute to providing quality health care and a health system that works for all South Africans.



PROJECT **HIGHLIGHTS**

CHEMICAL PROCESS TECHNOLOGIES PHARMA (PTY) LTD (CPT PHARMA)

Unveiling of the plaque by CPT Pharma, DST and the IDC: L-R: Dr Sibongile Gumbi, Dr Gerrit van der Klashorst, Ms. Glaudina Loots, Mr. Barlow Manilal, Mr. Hilton Lazarus, Dr Hannes Malan, Mr. Nelis Geyer.

"TIA has assisted in the building of a multi-purpose pilot plant, that is not only a national asset and resource, but a significant building block in the development of an API manufacturing industry in South Africa, which will ultimately result in an improved life for all of South Africa's citizens."

- Anton Steyl CA(SA) | Financial Director

CPT Pharma is a project undertaken by Chemical Process Technologies (Pty) Ltd, in partnership with TIA and the IDC. On 10 November 2017, a pilot plant was launched in Waltloo, Pretoria. The pilot plant is used to demonstrate and scale up innovative synthesis technologies developed by CPT for the manufacture of selected Active Pharmaceutical Ingredients (APIs), which are the active components in drug formulations. The pre-feasibility study in progress includes the construction of a current Good Manufacturing Practice (cGMP) compliant pilot plant to scale-up the production process and manufacture of batches for stability testing that are required for regulatory registration purposes. The current project includes four APIs, two of which are used in drugs to treat TB, one of the priority diseases that has a great impact on wellness and quality of life of many South Africans.

Importation of APIs costs South Africa R15bn annually and is a major driver in the cost of pharmaceuticals and healthcare. The pilot facility is an important step in developing a full scale commercial plant that could contribute to national priorities to enable local manufacturing, thereby stimulating economic activity and creating jobs. Over and above the benefit of import substitution, the local supply of APIs will provide local pharmaceutical manufacturers with a shorter supply chain, lower quality control costs and address issues of security of supply, important factors in the treatment of the diseases and ultimately in the quality of life of patients.

The CPT Pharma project contributes to the National Bio-Economy Strategy by supporting research, development and innovation in local pharmaceutical manufacturing which is critical to enhance South Africa's competitiveness in the global pharmaceutical industry. A vibrant local pharmaceutical industry will assist in providing South Africans with jobs and a health system that works for all. The ongoing collaboration of industry partners with science councils, universities and government is important in coordinating pharmaceutical initiatives within the NSI and CPT Pharma is an ideal partner for the development and commercialisation of innovative technologies from these organisations. While TIA is a funder, its role extends to that of connector and enabler. It is envisaged that the pilot plant could be used in the system for scale-up of other synthesis technologies, manufacturing of clinical trial material or small volume APIs and support for technology transfer projects.

Portable hand-held device able to identify patients at risk to a cardiovascular disease.

THE DEVELOPMENT OF CARDIOFLOW

"In 2017 TIA approved funding for the project 'The Development of Cardioflow' to the value of R9 859 020. The funding has been indispensable to the group undertaking this project and allowing the CSIR to expand its medical device portfolio. It is envisaged that this device will be an excellent screening tool, for the primary health care sector given its ease of use and rapid feedback process. Furthermore, upon completion it is the intention that it will be adopted by most primary health care clinics in South Africa and especially benefit marginalized communities where access to advanced health care facilities are not accessible. We are grateful to have partnered with TIA in developing this product as without the funding the project would have never been undertaken."

– Busisiwe Vilakazi, Research Group Leader, CSIR

Cardio-flow is a portable, hand held, point of care screening device developed by the CSIR. The device can identify patients at risk of cardiovascular disease (CVD) especially in the primary health care sector. It is envisaged that this device will be an excellent screening tool for the primary health care sector given its ease of use and rapid feedback process. Upon completion, it is anticipated that it will be adopted by the 4 200 primary health care clinics in South Africa and especially benefit marginalised communities where access to advanced health care facilities are not accessible. TIA approved funding of R9,9m for the proposed technology development and the CSIR contributed an additional R4,5m. It is envisaged that development of the technology will be completed by 2019. Cardio-flow will be an excellent screening tool for the primary health care sector given its ease of use and rapid feedback process.

The technology may in the future be applied more broadly to vascular ultrasound. The latter will allow a user to screen for vascular disease in the abdomen (such as kidney arteries, abdominal aortic aneurysms) and diagnose blood clots in the veins of the arms and legs, a condition known as deep vein thrombosis. All the aforesaid uses of Cardioflow will offer further value to the primary health care sector to impact positively on people's health and wellness.

14.2.5 NATURAL RESOURCES

The Natural Resources sub-programme supports projects that develop high-impact technologies, products and services that address national challenges and contribute towards the development of technologies in the water, waste management and mining sector.

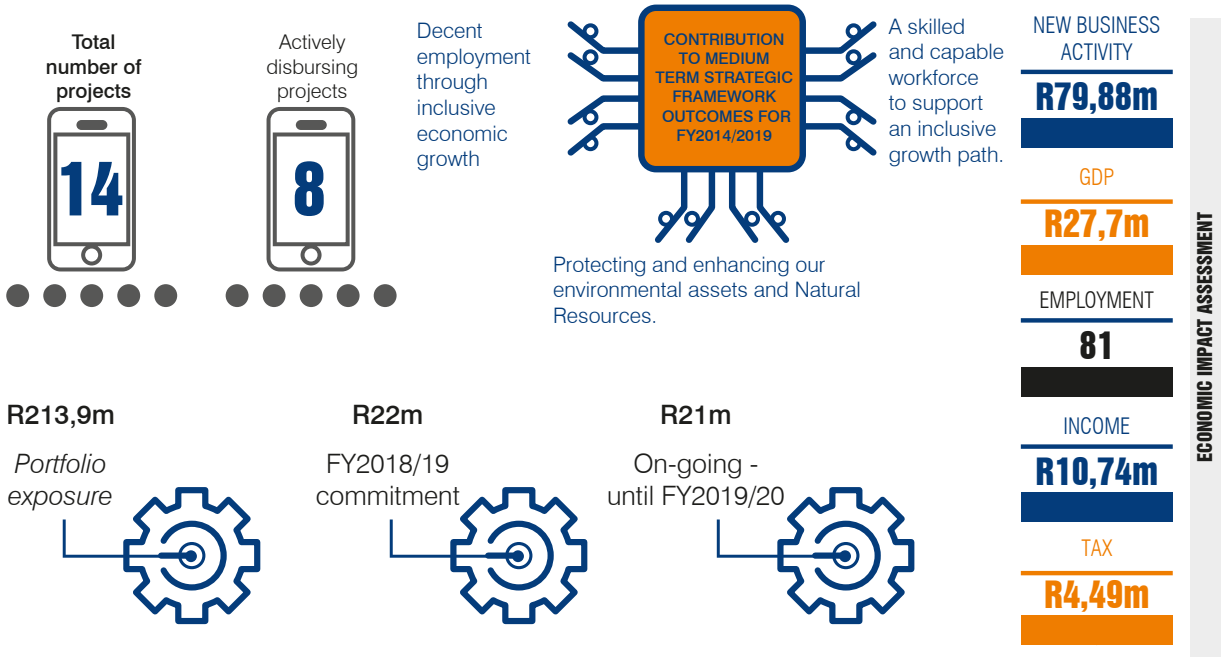
With regards to the water sector, the aim is to ensure water security using advanced technologies to sustainably improve efficiencies to address the water crisis. While there is a pressing scarcity of this resource in South Africa, clean water is a basic human need and technological innovation can greatly assist in providing this to all South Africans. Improving water management and supporting the backlog of water infra-structure programmes through technology development is also a desired outcome.

South Africa's commitment to sustainable development is aimed at balancing the broader economic and social challenges of a developing and unequal society while protecting environmental resources. For the waste sector in South Africa this means care must be given to raw material use, product design, resource efficiency, waste prevention, and minimisation where avoidance is impossible.

However, economic development, a growing population and increasing rates of urbanisation in South Africa have resulted in increased waste generation which requires establishing and implementing effective waste management policies and programmes Technological innovations to improve waste management can impact positively on the natural environment and the health and wellness of all.TIA's aim is to support the development of technologies to minimise the impact of waste and create industries that can use waste resources, leading to job creation in the sector.

In the mining sector, a provider of jobs and major source of export earnings, the aim is to achieve efficient, safe and competitive production using advanced technologies to sustainably improve process efficiencies in the extraction and exploitation of natural resources and to reduce worker exposure to hazards as well as maintain a competitive natural resources sector.

Further, Natural Resources seeks to position TIA as a thought leader in the natural resources sector through mainstream technology innovation as a primary consideration in the management of natural resources to ensure sustainability of this important source of national wealth.



Our experience with TIA funding for Stone Three Mining Solutions has been very positive. It is enabling us to accelerate innovation that would not have been possible just from operating profits, therefore decreasing our time to market, differentiating us to the extent that the prospect of substantial export revenue becomes more realistic and enabling us to strengthen our IP portfolio (we've just started lodging another patent). The funding has already allowed us to make our development teams stronger, e.g. by ensuring that we employ senior and experienced people.

– Derick Moolman, Chairman: Stone Three Mining Solutions

My experience applying for TIA Technology Development Fund has been very pleasant. The level of support from the Manager and team was excellent. The pre-proposal stage was very quick from when I submitted the project idea to setting up the first meeting where the team came to meet with me. During this time the project feasibility was scrutinised and this process assisted me in bringing together all the aspects of the project and to finally define the scope.

The approval of the proposal at the second level was also done effectively and efficiently. There was a delay in final approval as a bit more due diligence investigation was required. The funds were disbursed in September 2017. The project manager introduced me to the online reporting system which I think is an excellent tool. The instant message tool is efficiently responsive and I never waited longer than 24 hours for a response – either online or via e-mail to resolve my queries.

– Dr Veruscha Fester, Associate Prof: Flow Process and Rheology Centre, Faculty of Engineering, Cape Town Campus

PROJECT **HIGHLIGHTS**

CMTI CONSULTING (PTY) LTD

The MT950 -Multi-track equipped with either a dozer and/ or sweeper.

"We at CMTI would like to express gratitude on the professionalism and prompt service we have received from her. She is patient with us and has taken time to explain the approval processes as well as the quarterly reporting on the new Grant Management System (GMS). She has been proactive in scheduling site visits and attending to most of our queries timeously. We have also been able to transform our business positively after the inputs we received from the audit that TIA conducted on the project. We have also been introduced to the IDC for further commercialization support and we are grateful for that."*

– Dr NDL (Danie) Burger PrEng, PhD(Mech). GCC Managing Director, CMTI Consulting (Pty) Ltd

The Innovative Mining Technologies project is being undertaken by CMTI Consulting (Pty) Ltd with support from TIA. The project seeks to address the inability of mining companies to access massive amounts of reserves due to poor access and hazards of deep mining with the current mining practise of manual labour. These reserves are either unsafe or uneconomical to mine with current methods. The result is that with the current technology the end of life of gold mining is estimated to be around 2035 - 2040 and for conventional platinum mining around 2040 - 2045. With the introduction of new technology such as the equipment CMTI is developing, the end of life can be extended past 2070 and approximately 560 kg (equivalent of 11 new gold mines) and 360 kg of platinum reserves (equivalent of eight new platinum mines) can potentially be unlocked. Extending the lifespan of mines will result in a positive socio-economic impact.

TIA provided R19,1m funding to CMTI for the development of the MT950 and the MT3500 multi track platform. The aforesaid equipment operates in the ultra-low profile (ULP) range of 900 – 1200 mm stopping heights.

The technology will result in the reduction of miners working in dangerous areas, thus reducing the risk of fatalities and overall improving the safety of miners. Furthermore, it will enable the operation of mining equipment from remote distances and provide a central point for better operator productivity.

** The "her" referred to in the CMTI testimony is Ms Dineo Masokane (PM).*

GREEN IRON TECHNOLOGIES PROJECTS (PTY) LTD (GIT)

"It's my pleasure to provide this letter of testimony for Ms. Nqangi Mjimba, as the primary project champion and manager. We've have worked closely with her over the past four years, sharing the experiences of innovation and technology development in natural resources space. Nqangi showed excellent communication skills and consistently exceeded herself in providing the support and understanding especially faced challenges. On a personal level, she's charismatic and caring, both qualities have helped our project reach its end goal."

– David John Price Company Director Green Iron Technology Projects

TIA provided funding of R10m to GIT to carry out a project that entails the construction of a furnace with specialised materials. The project is being carried out at Cosmo City Industrial Park, Johannesburg. GIT has not only constructed and successfully commissioned the furnace but it has further developed a feedstock mechanism with no moving parts in the furnace's hot zone, this mechanism converts iron into a premium product known as HBI. HBI is a cheaper, low contaminant alternative feedstock for electric arc furnaces that traditionally rely on iron ore and scrap iron feedstock. While leading to a cleaner environment, this technology also has the potential of creating jobs in the steel making and mining industries.

The GIT furnace is patented as a "static slope reduction furnace" and as the "ore-processing furnace". It employs a static bed, which is manipulated mechanically at an incline. Fine material (oxide and reductant) is fed into the furnace from the one side and moves by gravity over the static bed.

GIT is currently testing the performance and efficacy of the furnace and have attracted the interest of both the local and international steel making and mining industries, all of whom would like to add value to and beneficiate their waste material. The furnace can potentially have a positive impact on the environment and has export potential that can create wealth.

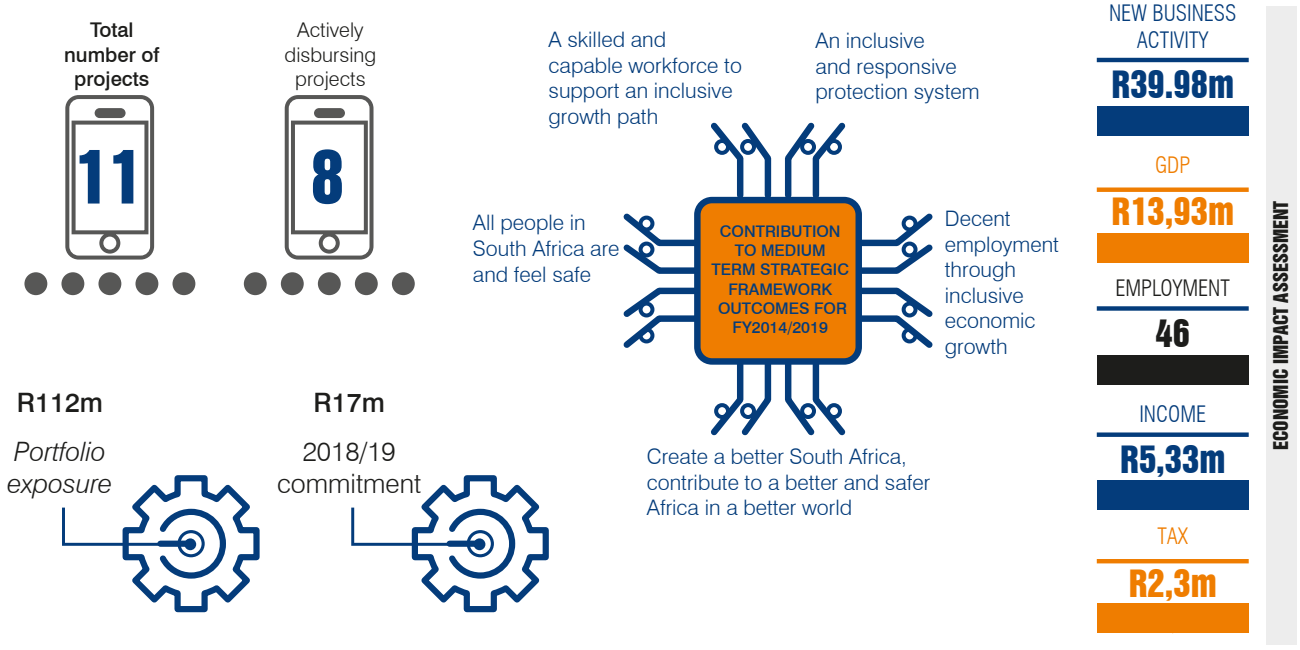
14.2.6 INFORMATION AND COMMUNICATIONS TECHNOLOGY

The ICT sub-programme pursues inventions in information and communications technology. Technological innovation in this field can lead to competitively priced and widely available broadband that will give citizens the means to boost their income and improve their lives. The main objectives of this programme is: providing innovators with technology development funding, performing portfolio management duties on the various innovations, and enabling the commercialisation of the innovation.

Support activities of the programme include; funding to key projects as well as non-financial support:

- Advising innovators on the initial stage of the project.
- Validating the innovators.
- Managing the various projects through regular reviews.
- Finding further funding for commercialisation.

> *For Custos, as a deep tech company, TIA has filled the massive gap in the South African venture funding ecosystem. This role that TIA plays cannot be underestimated in driving job-creating innovation in the South African economy.*
>
> **- Fred Lutz - COO, Custos (Pty) Ltd**



PROJECT **HIGHLIGHTS**

CUSTOS PROJECT

Beyond temperature sensing solutions, PST Sensors has developed the Heater-Sensor Stage, which combines a new generation of printed heating elements with its temperature sensing capability.

The highlight of the ICT portfolio during FY2017/18 was the Custos project. Custos created a technology that protects digital media such as films and eBooks from piracy, by using cryptocurrency and blockchain technology. The approach of Custos to fighting piracy in the Internet is to incentivize participants (i.e. pirates) in the piracy economy to turn on each other without the risk of the whistleblower being found out. Through a technology that has been patented in the United States of America (USA), when a whistleblower claims a reward for identifying pirated media, the original source that leaked the pirated copy is automatically identified.

During FY2017/18, Custos managed to acquire customers in countries such as Japan, India, Germany, Norway, United Kingdom, Canada and USA. This was an important milestone that confirms the international commercial potential for a technology that TIA has supported from when it was an idea in 2014.

14.2.7 WORKOUT AND RESTRUCTURING UNIT

> **New and sustainable businesses create jobs and can potentially address core socio-economic challenges**

The Workout and Restructuring Unit assists in the pro-active management of all TIA's post investment projects. This entails responsibility over the management of collections, commercialisation support activities, investment performance management of existing portfolios (performing and non-performing), risk assessment to identify and mitigate the risk of business failure, mentorship and business support.

The main objective is to transform technologies into sustainable businesses, protecting and leveraging TIA's investment, thus ensuring that TIA's investment is not eroded or under risk but sustained. In this vein, the post investment monitoring, restructuring, commercialisation, mentorship and investment support activities will be continuously improved to achieve TIA's desired outcomes. New and sustainable businesses will facilitate economic growth and have a positive impact on society.

PORTFOLIO PERFORMANCE

During the reporting period, TIA concluded an equity exit from Blue Cube Systems (Pty) Ltd. Blue Cube is a technology company that was funded by TIA to develop in-line mineral quantification instrumentation technology. The technology is applied to analyse a range of mineral ores containing titanium, zirconium, copper, nickel, silver, platinum, gold, iron and lithium. This technology enables customers to optimise process efficiencies and reduce wastage, resulting in savings and impacting positively on the economy.

TIA's initial funding support enabled the company to expand its product range and to focus on exports to increase its revenues which resulted in higher royalty payments to TIA, local employment and foreign exchange earnings. Blue Cube presently employs 27 permanent staff. TIA will continue to receive agreed royalty payments from the company until end of December 2025.

TIA added its royalty income a total of R1,4m from twelve investments during the financial year. Ten of the aforesaid investments are expected to continue paying royalties to TIA into the foreseeable future.

14.3 INNOVATION ENABLING AND SUPPORT (IES) PROGRAMME

Technological innovation is crucial for long-term economic development. Investing in and enabling technological innovation to create economic prosperity.

The IES programme aims to broaden and strengthen the technology innovation ecosystem. IES aims to fill a gap in the innovation value chain by providing funding and non-funding support, leveraging from the strength of strategic partnerships in a coherent manner and the provision of leading edge infrastructure that has a close interface with industry. The division comprises of three key focus areas and seven programmes which:

- provide seed funding to bridge the gap between research and technological outputs; and pre-commercialisation, thereby, de-risking research outputs, building an active and diverse technology pipeline which impacts on socio-economic development;
- provide access to cutting edge infrastructure and technical expertise required for technology innovation; reducing barriers of entry for aspiring/potential innovators to enable innovation in their respective value chains and creating new technically skilled jobs;
- provide focused and targeted training interventions to strengthen entrepreneurial capacity of researchers and innovators towards the commercialisation of outputs realised.

Enabling technological innovation and the commercialisation of products have the potential to lead to greater economic prosperity and improve the lives of South Africans.

Through its programmes, the division seeks to achieve amongst others, the following outcomes:

- an increase in the number of knowledge innovation products developed;

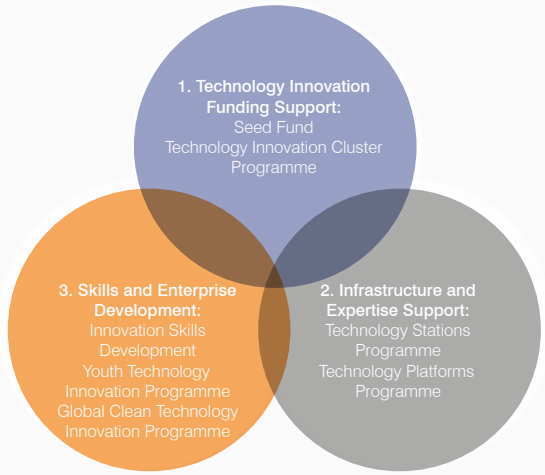


Figure 5: Innovation Enabling and Support Key Focus Areas and Programmes

- steady progression of innovative technology products progressing along the innovation value chain towards commercialisation;
- an increase in co-investment raised for TIA funded/supported projects through strategic partnerships;
- an increase in sustainability of technology focused SMMEs as a result of technology and business support from TIA;
- an increase in participation of SMMEs owned by HDIs and their sustainability; and
- enabling an integrated vibrant technology innovation system stimulating a culture of innovation.

14.3.1 YOUTH TECHNOLOGY INNOVATION PROGRAMME

Approximately a third of South Africa's population is below the age of fifteen. Within the country's high unemployment rate, one in every three young people are unable to find employment.[22] A further alarming statistic is that 43% of graduates within the youth population are unemployed.

As a means to address this burgeoning social problem, TIA has established the Youth Technology Innovation Programme (YTIP) as a unique targeted intervention to bring youth into the innovation ecosystem. Whilst YTIP is designed to reduce the barriers of entry and allow for easier access to structured support mechanisms, TIA also targets youth and the other priority groups through all of its other programmes. Various schools based programmes are also undertaken.

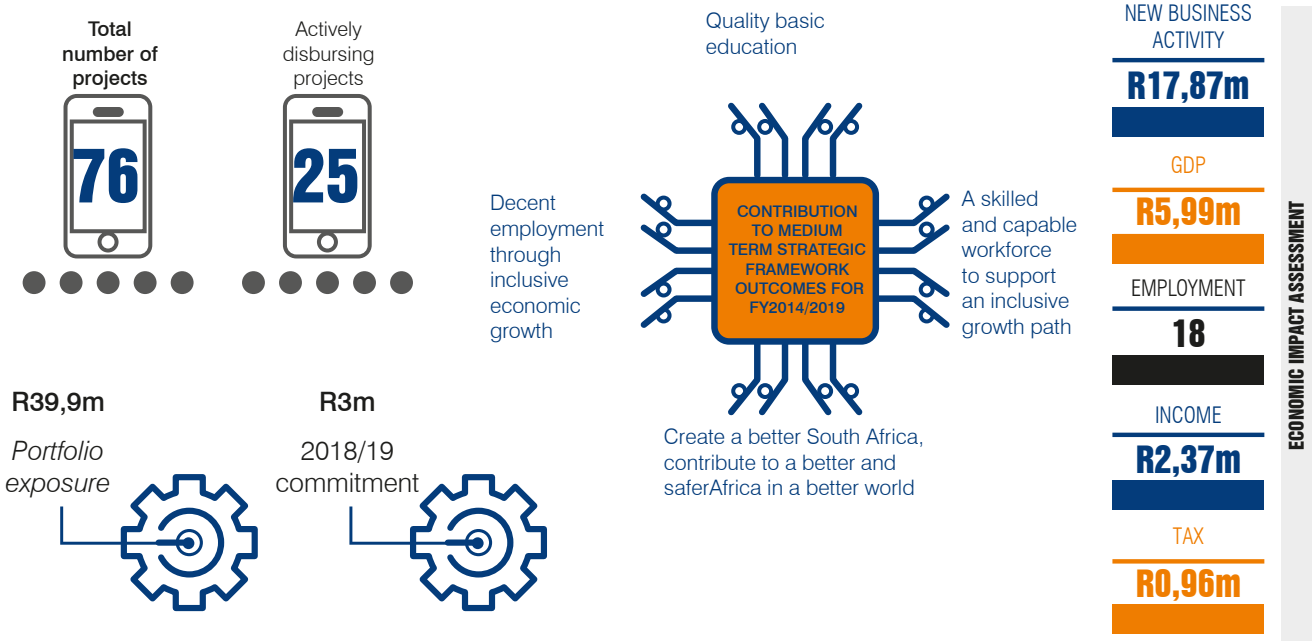
YTIP drives participation of young people in the economy by providing funding for the development of youth-led technology enterprises. YTIP was established to fund young people between the ages of 18 and 30 who have innovative ideas with the potential for commercialisation. TIA actively promotes projects that create jobs and skills, especially for the local youth.

A total of 76 projects in the Programme are offered funding to enable access to infrastructure support, business support, advisory services, skills development and intellectual property (IP) protection. The support includes a component for a basic stipend to enable the entrepreneur's mobility as they develop their technologies. The programme also extends to assisting participants to perform early-stage activities related to setting up their enterprises.

Harnessing the potential of working-age youth in this way can address a number of socio-economic challenges, such as lowering the levels of unemployment, poverty, and inequality.

PROGRAMME PERFORMANCE

- Seven new investments funded in FY2017/18 to the value of R5,5m.
- One project that achieved early stage market uptake and created three jobs.
- Eleven proofs of concept/functional prototypes developed and five applications to register intellectual property rights filed.
- Three projects supported originated from Masters and PhD students.
- Five projects supported originated from female innovators.
- Eleven projects are receiving enterprise development support through the joint TIA/SEDA incubation programme.



22 Statistics SA_2017 youth unemployment

YTIP **CASE STUDY**

SPINETECTOR SUIT

A suit that protects the upper bodies of underground mineworkers has received wide recognition from private enterprise and the government alike. The Spinetector Suit, developed by Mr. Sello Malinga, is a protective garment that covers the vertebral column, rib cage and the thoracic cavity and in that way lessens injuries of vital parts of underground mine workers' bodies when there are minor mine earthquakes or vibrations on the Earth's crust. In 2015, TIA funded the prototype development of the innovation to the amount of R773 580, including, intellectual property protection and a stipend. The product can improve the safety of mine workers, which has become a serious problem in South Africa.

During 2017, the project successfully progressed to laboratory validation. In the same year, the project was transferred to the joint TIA/SEDA incubation programme and is currently on course to achieve commercialisation. The project received further recognition as one of the top ten participants in the Cell C Hangman Competition.

The Spinetector Suit that enhances protection of the upper body for underground mineworkers.

14.3.2 TECHNOLOGY STATIONS PROGRAMME (TSP)

Technology Stations (TSs) provide innovative science, engineering and technology solutions for complex engineering challenges to clients including; individuals, SMMEs and industry with the aim of supporting the country's national priorities. TSs use technical capability at universities of technology to provide technology services to the abovementioned beneficiaries. There are eighteen TSs nationally.

The core goal of the TSP is to contribute towards improving the competitiveness of industry through the application of specialised knowledge and technology; facilitate the interaction between industry (especially SMMEs) and academia to enable innovation.

TIA provides financial support to institutions that house TSs to facilitate technical support for SMMEs in the form of technology solutions, services and training. These TSs are equipped with state-of-the-art equipment and are resourced with highly competent individuals in specialised fields to develop new products and processes for industry as well as research and development led entrepreneurs through serving as technology nurseries.

Empowering the beneficiaries of this programme will lead to economic growth and reduced unemployment.

PROGRAMME PERFORMANCE

During the year under review, TSP interacted with over 3 056 clients and supported a total of 2 800 SMMEs. Of these this clients supported, 626 enterprises were registered SMMEs; and 290 were non-registered techno entrepreneurs based at higher education institutions.

The table below provides a summary of the Programme's demographics of clients supported.

SUMMARY OF THE TYPES OF ENTERPRISES THAT RECEIVED SUPPORT FROM TECHNOLOGY STATIONS

TYPE OF ENTERPRISES	NUMBER
Registered - SMMEs	626
Non-registered techno-entrepreneurs	290
Non-registered entrepreneurs	2 090

A TOTAL OF R83 671 001 AND ADDITIONAL R11 456 480 GRANTS FOR FY2017/18

Figure 6: Inputs: Financial Grant and Additional Funding

PROJECT **HIGHLIGHTS**

JOHN GRAY & SON (PTY) LTD SPECIALISED BRUSHWARE AND CLEANING PRODUCTS

John Gray & Son, a client of the eNtsa Technology Station hosted at Nelson Mandela University, is a female-owned enterprise. The company manufactures specialised industrial brush ware, general and hygiene cleaning products. Through research and development a prototype manufacturing system was developed and tested, but a further need for design and process development transpired. This involved designing and refining a bending jig to bend the bristles for brushes as well as determining the most efficient number of bristles required per brush and how to position these for manufacturing.

Brushes similar to this product were previously only available through importation contributing to the negative trade balance. This project resulted in a locally designed and manufactured product that had successfully sold 1 500 units over the first three months of production. Four new permanent jobs were created, and the product was exported to other African countries, including Namibia and Zambia. The product has 100% local content as the material that was previously imported is now being sourced locally. It is contributing to both economic growth and job creation.

14.3.3 INNOVATION SKILLS DEVELOPMENT (ISD)

South Africa has a low rate of entrepreneurship among BRICS member countries.[23] Furthermore, the skills deficit on specialised training that enable ecosystems productivity has been recognised nationally and a major constraint in innovation outputs. The ISD programme plans to strategically support the NSI's capacity building requirements through various targeted interventions. Through its pipeline approach, the ISD ambit ranges from rural community colleges, schools, HEIs and entrepreneurs. The programme focuses on aspiring young people entering the NSI for the very first time to those that have been unsuccessful after many attempts and require upskilling.

The programme covers critical thinking skills for innovation, entrepreneurship training, technical skills that enable technology progression from ideation to pre-commercialisation to ultimately impact on a national level. ISD also addresses the strong need for flexible innovative learning approaches within the NSI.

The workplan of ISD for the year under review was premised on three pillars, namely FUTUR500, the NexGen100 and the Systemic Level training programmes:

FUTURE500 LEARNERSHIPS AND INTERNSHIPS

The objective of the FUTUR500 is to develop young black South African scientists, engineers and people in related career disciplines into self-directed young leaders through learnerships and internships for a creative, collaborative and entrepreneurial thinking. It aims to fast-track their employability in technology organisations through mentorship, experiential and formal training at innovation boot camps. FUTUR500 furthermore enables practitioners to implement technology transfer and commercialisation of products and to develop innovation skills for the future, thereby providing the opportunity for them to improve their employability and position in society.

23 NACI NSI indicators report 2017

Decent employment through inclusive economic growth

CONTRIBUTION TO MEDIUM TERM STRATEGIC FRAMEWORK OUTCOMES FOR FY2014/2019

A skilled and capable workforce to support an inclusive growth path.

Rural development

> **The FUTUR500 initiative has placed over 500 interns in the past five years whilst also training over 11 000 youth in critical thinking skills through community colleges.**

ECONOMIC IMPACT ASSESSMENT

NEW BUSINESS ACTIVITY	R26,68m
GDP	R9,04m
EMPLOYMENT	28
INCOME	R3,61m
TAX	R1,46m

CHUMA COMMERCIALISATION PRACTITIONERS

CHUMA successfully placed 12 South African candidates and five foreign candidates on a two-year programme. Ten of the candidates attended professional knowledge transfer exposure programmes and coaching in the United Kingdom, funded by the British Council. Seven candidates have to date already received employment in technology transfer positions in the NSI (i.e. the Water Research Commission, the Technology Transfer Offices of the University of KwaZulu–Natal, University of the Western Cape, Fort Hare University, the University of Venda, the University of Cape Town, and Mashabela IP).

PROJECT **HIGHLIGHTS**

The FUTUR500 initiative has placed over 500 interns in the past five years whilst also training 11 447 youth in critical thinking skills through community colleges. In addition, scarce and critical skills for commercialisation have been built through training 30 commercialisation practitioners under the CHUMA Commercialisation Programme.

GENDER SPLIT 2017-2018

INTERNSHIPS	Female	Male	Total	Total
Industry/Investec Bank /Sectoral Education and Training Authorities	21	14	35	66%
National Research Foundation	4	2	6	11%
CHUMA	7	5	12	23%
Total	**32 (60%)**	**21 (40%)**	**53**	**100%**

Note: The above number of youth consisted of 97% African; 3% Indians of which 32 (60%) were females; and 21 (40%) males

EMPLOYMENT TRACKING

TRACKING	INDUSTRY + CHUMA INTERNS	%
Permanent Employment /12 months Contracts	27	51%
Fixed Term Contracts (3 to 6 months)	13	25%
Further Studying	8	15%
Still to be tracked/ completing June 18	5	9%
Total	**53**	**100%**

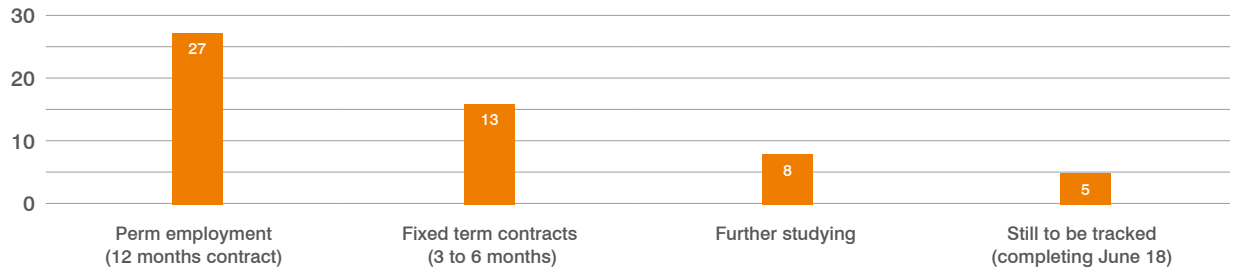


Figure 7: following the completion of the FUTR 500 programme.

KEY STAKEHOLDERS IN FUTUR500

Key strategic partners include: Energy and Water Sectoral Education and Training Authority (EWSETA), the British Council, law firms specialising in IP venture capital firms, technology transfer offices at higher education institutes (HEIs), the Nuclear Energy Corporation of South Africa, incubators, Investec Bank, South African National Energy Development Institute, the Agricultural Research Council (ARC) and other SMME platforms willing to host interns.

The programme is already contributing to the reduction of unemployment and inequality and helps create a more inclusive society in South Africa.

NEXGEN 100

The NexGen 100 programme develops entrepreneurial capacity by turning theoretical research and innovation into technology opportunities for commercialisation. Participants are offered platforms for knowledge/skills transfer in technology entrepreneurship through mentorship and matching opportunities for local and global venture capital funding. International collaborators include France, Germany, the United Kingdom, India, Canada, Hong Kong, and Switzerland.

The programme drives a strong transformational agenda where in FY2017/18 it had 70% black candidates whilst 40% were female.

SYSTEMIC LEVEL AND SOCIAL INNOVATION

At a systemic level, ISD operates in the quadruple helix model of innovation by attracting new partners from industry, government, academia and communities to interact to foster maximum social and economic development. An emerging e-waste industry involving the Department of Environmental Affairs, the South African Technology Network (SATN), DST, industry and communities was conceptualised for implementation.

Interventions include:

- Foresight Leadership Innovation Programme (FLIP) programmes to capacitate the public services sector through the train-the-trainer programme.
- The development of an e-learning platform (called 'Skillzbook') in partnership with the national community colleges. It capacitates the unemployed youth with a continuous professional development programme curriculum, including critical thinking skills levels 1-4.

Workshops and learning through webinars capacitate universities in economically depressed areas, technology transfer offices and incubators in the NSI, ultimately benefitting their students' employment opportunities and improving their lives.

REGIONS WHERE TRAINING WAS CONDUCTED

PROGRAMMES IN NEXGEN100	NO OF SMMES/ INNOVATORS	PARTNERS	CO-FUNDING RAISED
Knowledge/skills transfer - Leaders in Innovation Fellowship (LIF) Programme	15	DST, RAEng, British Council, UK Newton Fund, SEDA	R1,5m
Technology Entrepreneur Programme - Swiss SA	Phase 2:20 Phase 3:10	DST, UniBasel, Venture Lab, Swiss Embassy	R2m
Accelerator Programme - TechNvst	30	Microsoft, Telkom, IDF	R4,8m

REGIONS WHERE TRAINING WAS CONDUCTED

NO	REGION	CORE TRAINERS TRAINED	LECTURERS TRAINED	STUDENTS ON BOARD
1	Gauteng	3	214	4 854
2	Mpumalanga	2	90	3 461
3	KwaZulu-Natal	1	51	439
4	Western Cape	1	54	2 693
Total		**7**	**409**	**11 447**

14.3.4 TECHNOLOGY INNOVATION CLUSTER PROGRAMME (TICP)

The TICP is a collaborative multi-stakeholder programme geared to identify and achieve common objectives in a coherent manner using the clustering methodology. The cluster approach capitalises on economies of scale and sector level collaboration within the innovation value chain. The programme seeks to catalyse new priority sectors in support of strategically advancing the country to a knowledge based economy. TICP straddles all three tiers of government including the appropriate NSI stakeholders.

Through its facilitating role, TCIP also enables and mobilises industries in emerging markets; markets requiring revitalisation, or markets requiring support for growth and expansion. TICP's primary approach is to enhance strategic collaborations with the aim of exploiting opportunities for economic, social gain and knowledge growth. These opportunities will have a positive impact on the economy and employment opportunities.

HIGHLIGHTS

UYILO EMOBILITY TECHNOLOGY INNOVATION PROGRAMME

The uYilo eMobility Programme has been operational since March 2013, through an initiative of TIA. It is hosted by the Nelson Mandela University's engineering innovation entity, eNtsa. The Programme is a national multi-stakeholder collaboration focused on enabling, facilitating, mobilising and pioneering electric mobility sectoral growth within the green economy for South Africa.

uYilo has been made available to the entire innovation value chain, which includes higher education institutions, science councils, SMMEs, automotive component suppliers, original equipment manufacturers (OEMs), innovators and entrepreneurs across Research, Development and Innovation (RDI) initiatives. During the year under review, uYilo's support extended across lobbying on policy matters (providing inputs to the Green Transport Strategy) and

> **The National Development Plan's vision is that, by 2030, South Africa's education, training and innovation system caters for different needs and produces highly skilled individuals.**

PORTFOLIO SUMMARY	
Total number of projects	1. The Animal Health Technology Innovation Cluster 2. uYilo Technology Innovation Cluster (eMobility) 3. Beef Genomics Technology Innovation Cluster 4. Dairy Genomics Technology Innovation Cluster 5. Forestry Molecular Genomics Programme (Transferred from DST in Q4, FY2017/18)
Total Portfolio exposure	1. The Animal Health Technology Innovation Cluster = R115,7m 2. uYilo Technology Innovation Cluster = R39,7m 3. Beef Genomics Technology Innovation Cluster = R29,8m 4. Dairy Genomics Technology Innovation Cluster = R9,7m. Total at end March 2018 = R194,8m
Active disbursements	All four programmes are actively disbursing
Planned clusters for FY2018/19	1. Forestry Molecular Genomics 2. Medical Devices and Diagnostics 3. Active Pharmaceutical Ingredients 4. Electronic Waste Beneficiation Total value is: R15m
On-going - until FY2019/20	1. The Animal Health Technology Innovation Cluster 2. uYilo Technology Innovation Cluster 3. Dairy Genomics Technology Innovation Cluster

Decent employment through inclusive economic growth

CONTRIBUTION TO MEDIUM TERM STRATEGIC FRAMEWORK OUTCOMES FOR FY2014/2019

A skilled and capable workforce to support an inclusive growth path.

ECONOMIC IMPACT ASSESSMENT

NEW BUSINESS ACTIVITY
R52,04m

GDP
R17,32m

EMPLOYMENT
55

INCOME
R7,10m

TAX
R2,78m

lobbying for incentives (assisting OEMs with submissions to the International Trade Agreement Council (ITAC)). It has been lobbying for incentives related to the reduction of import duties on electric vehicles, with the aim of accelerating the enabling environment for market uptake of electric vehicles. One of the many benefits of electric vehicles is that it can reduce harmful pollution from vehicle exhaust emissions and contribute to a low-carbon economy.

As part of uYilo's interventions in the advanced energy storage area, it has signed agreements with Nissan's global electric vehicle division for administering and managing Nissan's second life electric vehicle batteries in South Africa. It has also signed an agreement with Mercedes Benz for collaboration on battery second life evaluation.

In October 2017, uYilo provided R2,36m financial support to the following four projects undertaken by SMMEs, through the uYilo Kick Start Fund:

- Ubun2Tech received a grant of R500 000 to develop a four-wheel RE-Link1 Electric Trailer.
- IET Solar received a R4m grant to develop a system of electro-mobility and residential storage integration.
- Intelligent Machines received a grant of R4,1m to develop a prototype of 400V 800Nm induction motor for the heavy vehicles Kinetic Energy Recovery System (KERS) application to replace the YASA motor in the Adgero system.
- Microcare received a grant of R1m to develop a 50 kW three-phase DC EV fast charger for electric vehicles.

BEEF GENOMICS PROGRAMME (BGP)

The first phase of the BGP was formally established in April 2015, with genetic progress as intent. This was informed by extensive consultation between role-players in research institutions, service providers to industry, industry and government (represented by TIA). These consultations followed a series of workshops in 2012, which focused on genomics in the livestock industry. The "Livestock Genomics Task Team" (mandated by research institutions and industry) evaluated the implementation of genomics into traditional performance recording; and worked closely with TIA to develop a potential programme.

Genetic progress is a measure of improvement of an animal's performance for a specific trait. Performance is accelerated by the addition of genomic information, resulting in the development of genomic enhanced breeding values when compared to conventional breeding programmes. The resultant increase in animal production, together with rapidly decreasing costs for obtaining the genomic information, translates to increased economic returns for the livestock farmers and increased food security for all. Enhanced breeding values place the country in a more competitive position within the global market.

In 2017, TIA appointed Nova Economics (Pty) Ltd to provide an independent and objective assessment of the social and economic impact the BGP could have over its envisaged 13-year funding lifecycle. The aim was to assess how well the South African BGP is expected to perform over the appraisal period. The approach and methodology used by the Australian Beef Cooperatives Research Centre was adapted for this study. The economic evaluation is a cost-benefit analysis (CBA). CBA is a comparative economic analysis that provides a comprehensive assessment of the future streams of costs and benefits associated with an investment programme, relative to a scenario where no project is undertaken.

RESULTS

The results showed that the continuation of the BGP is set to have a significant, positive economic benefit.

- The total present value of the benefits was calculated to marginally exceed R2,65bn over twenty years.
- The present value of the input costs and usage costs were estimated at R834m and R27m respectively.
- The estimated economic net present value is R1,79bn over the 20-year period of measurement.
- The benefit-cost ratio is 3,08 which means that the present value of the project benefits is more than three times the present value of the costs. This can also be interpreted as representing a 3,08 return for every Rand invested in the BGP.
- The economic internal rate of return indicates that the annualised return of the project is 18.70%.

14.3.5 TECHNOLOGY PLATFORMS PROGRAMME (TPP)

These Platforms provide access to technology infrastructure and expertise to various users in the NSI.

TPP supports a total 113 staff members that are employed by the nine platforms that in turn provide technology services to 10 projects. A breakdown of the projects per platform and focus area is illustrated in figure 8.

PROGRAMME PERFORMANCE

TPP disbursed R51m to the various Platforms during FY2017/18. The Programme was also able to attract R67m of third party investment to the Platforms. The leveraged funds were mainly used to support the execution of projects undertaken by the Platforms. R46,3m of the funds were obtained from the private sector, which indicates the ongoing relevance of the programme to industry partners.

TPP's considerable expertise, ranging from bio-risk assessment and sustainability, bioprocessing and biomanufacturing, genomics and bio-informatics, is shared broadly with other stakeholders in the NSI. This prompted the programme to complete 39 thought leadership initiatives focused on knowledge sharing with other stakeholders.

An important objective of the Programme is to provide capacity development opportunities to students, thereby improving their employability. During FY2017/18, a total of 53 students were supported. The demographic profile of the students is provided in figure 9 on the following page.

> TPP supports the creation of an enabling environment for bio-technology innovation through the establishment and provision of high-end technical infrastructure equipment to technology platforms.

Decent employment through inclusive economic growth

CONTRIBUTION TO MEDIUM TERM STRATEGIC FRAMEWORK OUTCOMES FOR FY2014/2019

A skilled and capable workforce to support an inclusive growth path.

ECONOMIC IMPACT ASSESSMENT

NEW BUSINESS ACTIVITY
R133,44m

GDP
R46,61m

EMPLOYMENT
163

INCOME
R18,83m

TAX
R7,56m

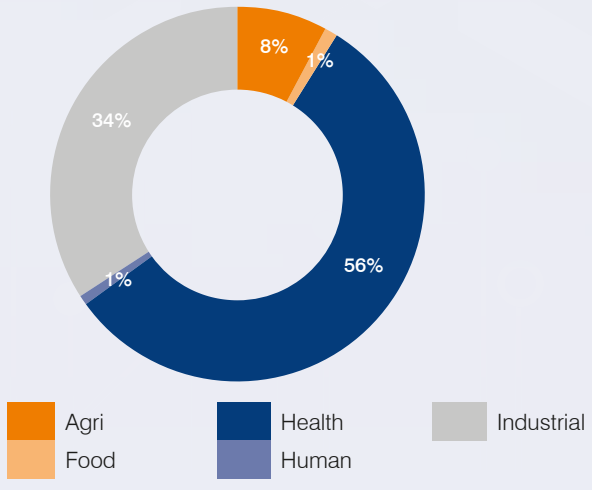


Figure 8: Projects per focus area

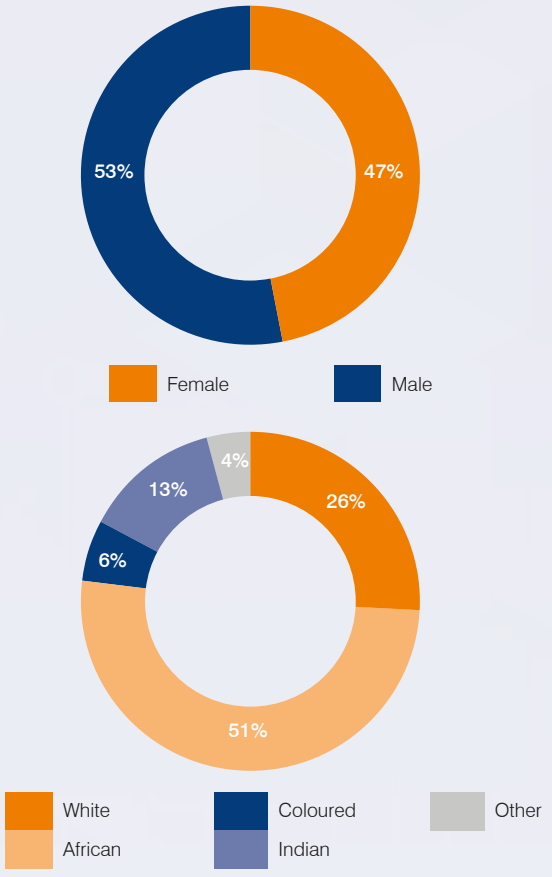


Figure 9: Students supported by race (a) and gender (b)

HIGHLIGHTS

ENHANCING SOUTH AFRICA'S GENOMICS CAPABILITIES

In June 2017, TIA demonstrated its ongoing commitment to South Africa's Bio-Economy Strategy, in particular the building of capability in strategic areas, by concluding an agreement with the University of KwaZulu-Natal for the formation of the KwaZulu-Natal Research and Innovation Sequencing Platform (KRISP).

KRISP is funded by TIA and delivers services to its clients in four areas: Omics, genomics, bio-informatics and epigenetics enablers. With regard to the above, KRISP focuses on providing services to academic and research and development clients to generate scientific publications, innovations and Intellectual Property (IP). This is undertaken by deploying a professional team of grant managers, scientists and laboratory staff that can help to design, fund, generate and analyse omics data.

Newly renovated extraction and sequencing facilities at KRISP

NEXT GENERATION DIAGNOSTICS

KRISP focuses on providing deoxyribonucleic acid (DNA) diagnostic testing to commercial (such as pathology laboratories, pharma companies and clinicians) and academic clients. KRISP uses the latest technologies currently in the market, including next generation sequencers and digital/nanodrop and direct polymerase chain reactions to develop novel diagnostic solutions.

TRAINING AND CAPACITY BUILDING PROGRAMME

KRISP focuses on providing short specialised courses in genomics, bio-informatics and epigenetics that are designed for researchers and commercial clients.

ZUPLEX (PTY) LTD

Zuplex, trading as Zuplex Botanicals, is a small enterprise poised to be an important player in the South African bio-economy through the commercial production and beneficiation of selected indigenous medicinal plant species. The company is targeting the global cosmetics, pharmaceutical and food/flavourant markets. Edakeni Muthi Futhi Trust, an independently verified level 1 B-BBEE trust established and run to benefit the rural black community of Dakeni, Eshowe, KwaZulu-Natal, is one of the co-founders of Zuplex and is a 32% shareholder. Edakeni Muthi Futhi Trust cultivates and processes indigenous medicinal plants for resale and benefits from Zuplex's tenancy at TIA's Bio-processing Platform premises since September 2017.

Zuplex's tenancy at the Bio-processing Platform has enabled it to establish a small-scale research and development facility as part of its start-up phase. Approximately 12 new plant extracts derived from indigenous plant species are being researched by Zuplex. The benefit of being based at TIA's Bio-processing Platform allows Zuplex access to a diverse range of critical laboratory equipment and expertise for product and process development, quality control, contract micro-biological services and other enabling services. The partnership between Zuplex and the Bio-processing Platform is the initial step in the journey to support them to create up to 200 jobs in the rural areas, with an emphasis on employing women.

In addition to the rural jobs, 15 industrial jobs and the establishment of three to five additional rural SMMEs will be created over a period of five to seven years, leading to economic growth and job creation in areas where it is of utmost importance.

14.3.6 GLOBAL CLEANTECH INNOVATION PROGRAMME (GCIP-SA)

GCIP-SA's Top Performers for the 2017 Gala and Awards event.

Entrepreneurship plays an important role in economic growth and standard of living, not only by creating jobs, but also by developing innovations that lead to the improvement of the quality of life.

GCIP-SA is the South African chapter of the international Global Cleantech Innovation Programme for SMMEs. Operating as a business accelerator, GCIP-SA aims to promote clean technology innovation and support for entrepreneurs in growing their businesses into viable, investment-ready businesses.

Launched in South Africa in 2014, the programme was jointly implemented by the United Nations Industrial Development Organization (UNIDO) and hosted by TIA, with funding by the Global Environment Facility (GEF). The main knowledge partner of the global programme is Cleantech Open, based in the United States of America.

Following four years as a donor-funded project, GCIP-SA was integrated into TIA in January 2018, with the intention of building on the achievements of the past whilst expanding the programme even further. As a first step in integration, entrepreneurs from two other TIA programmes, namely the Medical Devices Cluster and Bio-processing Platform will be included as participants in a Business Accelerator Programme during FY2018/19.

In order to deepen the impact of the programme, additional mentors will be trained. The integration of GCIP into TIA also allows for current and previous participants in the programme to benefit from TIA's other financial and non-financial support mechanisms, as well as its various partnerships and networks. Over the past four years, GCIP-SA has supported entrepreneurial teams from across the country with more than 100 Cleantech entrepreneurs directly benefitting through its industry-leading Business Accelerator Programme.

COMPOSITION OF CLEANTECH SEMI-FINALIST TEAMS OVER THE PERIOD 2014 –2017

	2014	% OF TOTAL	2015	% OF TOTAL	2016	% OF TOTAL	2017	% OF TOTAL
Number of Semi-finalists	23		28		26		25	
Female	1	4%	4	14%	5	19%	8	32%
African	5	22%	8	29%	5	19%	8	32%
Youth	6	26%	7	25%	7	27%	10	40%

PROGRAMME PERFORMANCE

198 applications were received for FY2017/18 programme, emanating from across the country, covering technology categories such as energy efficiency, renewable energy, water efficiency, waste beneficiation (including e-waste), green buildings and green transportation.

Twenty-five teams were selected to participate in the business accelerator programme. The intensive programme was effective in turning their smart Cleantech innovations into investment-ready businesses through:

- An industry-leading mentoring and training programme.
- Ongoing expert mentoring.
- Showcasing opportunities (locally and internationally).
- Access to potential investors, partners and customers.

HIGHLIGHTS

GCIP-SA'S TOP PERFORMERS FOR 2017 GALA AND AWARDS EVENT

The GCIP-SA's top performers for 2017 were announced at a gala and awards event held in Pretoria on 3 November 2017. Hosted by TIA and UNIDO, the event was attended by 170 high-level guests from representing various foreign embassies, the South African government, industry and academia, with the Honourable Minister of Science and Technology Ms. Naledi Pandor as the keynote speaker.

Mr. Bandile Dlabantu from Khepri Innovations was announced as the overall 2017 winner for his mobile insect bio-conversion unit, which uses black soldier fly larvae to convert organic waste into animal feed, helping emerging farmers to improve their yields.

Abattoirs produce up to 2.3 million kgs of waste per year and are challenged with waste management. The high costs for feed protein for animals impact negatively on small rural farmers, resulting in higher operating costs, lower margins and an ultimate decline in their business. Khepri Innovations' mobile fly farms processes organic waste into animal feed proteins on site using fly larvae, making it an affordable animal feed solution for emerging livestock farmers.

Since the Khepri solution is mobile, it can be transported to any location where waste is available to produce insect proteins. It reduces feed costs for local farmers as well as the costs of disposing organic waste and the processing thereof.

1 000 mobile fly farm units were sold in 2017, resulting in a total annual revenue of R180 000. Total projected sales for 2018 are estimated at 36 000 mobile fly farm units. This outstanding innovation has already had a positive impact on many rural farmers who were able to improve their businesses.

PARTICIPATION IN CLEANTECH WEEK AND GLOBAL FORUM IN LOS ANGELES

In January 2018, Mr. Bandile Dlabantu, Dr Sara Andreotti and Ms. Euodia Naanyane-Bouwer joined top GCIP entrepreneurs from around the world in Los Angeles, USA to participate in the GCIP Global Week and Cleantech Open Global Forum. The fully paid trip to the US was part of their winners' package for excellent performance in GCIP-SA. Ms. Naanyane-Bouwer received a "Special Category" commendation for the social impact of her reusable, biodegradable Gracious Nubian sanitary pads. All three of the entrepreneurs had the opportunity to pitch their innovations to potential partners and investors.

14.3.7 SEED FUND PROGRAMME (SFP)

The main purpose of the Fund is to enable innovators to evaluate, demonstrate and advance the value proposition and commercial potential of their research outputs. The SFP therefore contributes towards de-risking research outputs in order to increase the pipeline for TIA and other funders. The programme has two components: the SMME Seed Fund and the HEI Seed Fund. The SMME Seed Fund is run through regional development agencies and incubators, whilst the HEI Seed Fund is run through the HEIs and Science Councils.

PROGRAMME PERFORMANCE

During FY2017/18 the Seed Fund Programme issued one call for applications to Higher Education Institutions (HEIs). The programme received 96 applications that were eligible for funding from 19 HEIs across South Africa. From the 96 applications received, 57 applications were funded to the value of R 33,3m. The applications that have received funding are in various technology focus areas such Health, Advanced Manufacturing, ICT, Agriculture and Natural Resources, with most of the applications in the area of bio-economy; pharmaceuticals and medical devices accounting for more 20 applications, agri-biotechnology with 8 applications as well as in the area of environmental, water and waste management related technologies accounting for 7 applications that have been funded. The SFP is a significant mainstay fund that contributes immensely to TIA's socio-economic impact.

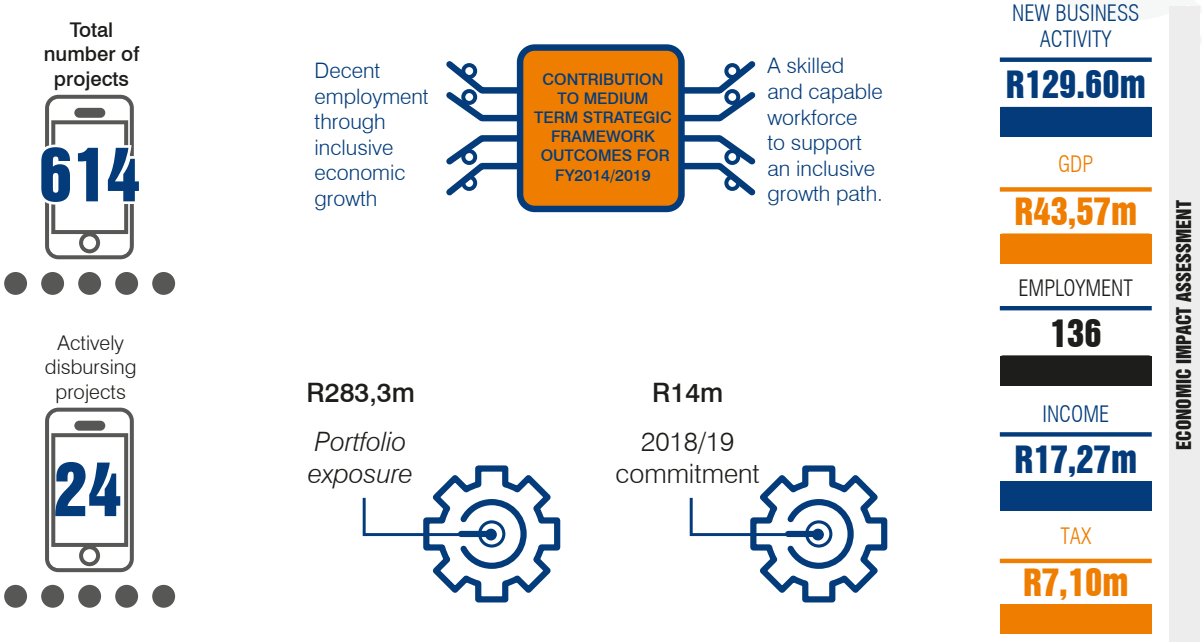
HIGHLIGHTS

Project name: Elemental
Amount of funding provided: R4,1m
Funded activities: Commercial prototype development
Beneficiary HEI: University of Cape Town (UCT)
Beneficiary: Arnaud Malan

ELEMENTAL

At take-off, almost 40 percent of an aircraft's weight is fuel, which is typically located in the wings. This means that whenever the aircraft is flying through turbulence, this fuel starts to slosh around quite violently, which can impact the plane's motion. This is something aircraft designers have been trying to address in recent years, but have found extremely complex to model. In 2009, Arnaud Malan and his team began building a mathematical tool to calculate what happens to the fuel in the wings during turbulence. He subsequently developed the original code for the model.

The Elemental project focussed on increasing the Technology Readiness Level (TRL) of the working liquid slosh model,



> **The applications that have received funding are in various technology focus areas such as Health, Advanced Manufacturing, ICT, Agriculture and Natural Resources**

to round the technology off in a way that would make it customer-friendly. At the start of the project, the technology was at TRL 5 (technology tested in a simulated environment), but by the end it was at TRL 9 (technology proven). Within months of this project being completed, one of the significant outcomes was that Malan's team secured a contract with a large aircraft manufacturer where the technology was adopted into the aircraft design. The project has been so successful and the calculations deemed so accurate that the software will be used as is, without any flight tests.

On the back of this achievement, Elemental has rapidly progressed from prototyping to being fully implemented. This project represents a remarkable South African success story, where the small team based at UCT competed with all the other commercial aircraft technology scientists around the world. In addition, the team has developed a simple user manual and a user interface that makes it easy for the consumer to use the software. Clients are now able to use the technology on real design cases. Malan has established a team to work on these projects in the future. During 2017, the technology has created three jobs for highly skilled people (two with Masters degrees, and one with a PhD degree).

The funding from TIA has been a valuable catalyst that has led to other related projects, due to the fact that the "sloshing module" is only one of the capabilities of the code. The range of other capabilities includes a fan design tool for large industrial fans. As a result, Elemental will be rolling out their second piece of software at the end of the financial year. In addition to delivering on their three-year contract with the aircraft manufacturer, Malan and his team plan to target the more general engineering public, which has a far wider user base with greater opportunities for growing the business.

HEI SUB-PROGRAMME	SMME SUB-PROGRAMME
Beneficiaries: Researchers based at universities and science councils.	**Beneficiaries:** SMMEs and individual innovators.
Partners: Universities and science councils	**Partners:** Provincial development agencies and incubators
Registered partners to date: Tshwane University of Technology, University of Pretoria, University of Johannesburg, Vaal University of Technology, Wits Commercial Enterprise , University of South Africa, North-West University, Central University of Technology, University of the Free State, Durban University of Technology, University of Kwa-Zulu Natal, Mangosuthu University of Technology, University of Zululand, Walter Sisulu University, Nelson Mandela University, Rhodes University, University of Fort Hare, University of Limpopo, University of Venda, Cape Peninsula University of Technology, University of Western Cape, University of Cape Town, Stellenbosch University and Nuclear Energy Corporation of South Africa.	**Registered partners to date:** The Innovation Hub(TIH), Eastern Cape Development Corporation (ECDC), InvoTech NPC, SmartXchange Technology Hub, Free State Development Corporation, Limpopo Economic Development Agency, Cape Craft and Design Institute NPC, Savant Technology Incubator NPC and Propella Business Incubator.

AMOUNT OF FUNDING DISBURSED TO THE HEI AND SMME SUB-PROGRAMMES

FINANCIAL YEAR	NUMBER OF HEI SUB-PROGRAMME BENEFICIARIES	AMOUNTS DISBURSED	NUMBER OF SMME SUB-PROGRAMME BENEFICIARIES	AMOUNTS DISBURSED
2016/17	105	R47,8m	27	R26,7m
2017/18	58	R 33,2m	40	R27,0m
Total	**163**	**R81,0m**	**67**	**R53,7m**

14.3.8 THE SOUTH AFRICAN BIO-DESIGN INITIATIVE (SABDI)

SABDI is a Programme that supports collaborative and integrative research projects focusing on functional genomics, structural biology, synthetic biology and systems biology. SABDI is particularly interested in bridging the physical, computational, engineering and life science disciplines. Due to its very nature, the SABDI disciplines cut across different thematic areas of the bio-economy and "seeds" these areas, allowing for the development of high-end skills needed for the creation of smart bio-systems for the future.

Skills development and technology transfer to historically disadvantaged students are key deliverables. Strategically, SABDI aims to build a nexus of expertise amongst HEIs, industry and government to create innovative solutions and technologies to local problems, instead of continually relying on the international market.

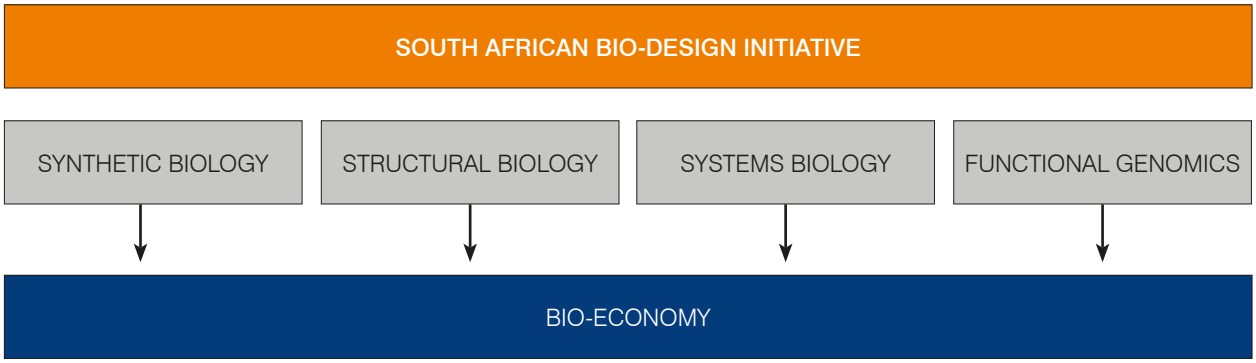
The SABDI programme was transferred from the DST to TIA during FY2016/17. The first six months of the programme was dedicated to capacitating the unit, hence effective delivery only commenced early in FY2017/18.

PROJECTS

In line with these objectives, four SABDI projects have been approved for funding. Two projects are currently undergoing active disbursement whilst the remaining two are in the process of finalising contracts with the beneficiaries. The projects in the SABDI portfolio also reflect a strong health focus and were previously funded by the Medical Research Council (MRC). These projects all have strong genomics foundations with a reach into systems-, structural and/or synthetic biology fields and all have international and/or local commercial partners. SABDI projects also have a strong focus on skills development of students as follows:

QUALIFICATION	# ON PROGRAMME
Post-doctoral Fellows	7
Doctoral	6
Masters	7
Honours	6

SABDI'S ROLE IN SERVING THE BIO-ECONOMY STRATEGY



HIGHLIGHTS

THE ROSY-FACED LOVEBIRD PROJECT

Agapornis roseicollis (rosy-faced lovebird) parrots are native to Southern Africa (Angola, Namibia and the North-West of South Africa) and are in global demand as pets. High prices are paid for birds with exceptional bloodlines, quality and coloration. Currently, there are no accurate genetic tests to ascertain pedigree of the birds. This project seeks to develop a genetic test for this purpose and already has market interest from breeders' associations as well as international researchers for the test to be developed. Globally there are no other groups currently identifying and validating genetic variation in the larger lovebird population. The project has the potential to create jobs and wealth for South Africans.[24]

Highlights: The researchers achieved a world-first by sequencing, assembly and publishing of the parrot genome in Animal Biotechnology (October 2017). They presented a paper at the 11th World Congress on Genetics Applied to Livestock Production, which took place from 11 to 16 February 2018. They successfully demonstrated proof-of-concept of the test and plans are underway to develop specific DNA arrays that can verify lovebird parentage.

Rosy-faced lovebirds: Researchers: Dr Rencia Van der Sluis (North West University), Dr Carina Visser (University of Pretoria).

24 Researchers: Dr Rencia Van der Sluis (North West University), Dr Carina Visser (University of Pretoria)

BIO-DIESEL PRODUCTION USING IMMOBILISED GOAT-GUT LIPASES

Approximately 28 million kgs of waste oil is produced annually in South Africa. Even with efforts in place to reduce this amount through bio-diesel production, currently only 400 000 litres of bio-diesel are produced per annum, representing only 0.005% of the market penetration target. There is therefore a need to embark on large scale production of bio-diesel. Most companies exclusively employ chemical methods to convert cooking oil to bio-diesel. However, drawbacks such as high energy requirements and difficulties in the recovery of the catalysts and glycerol as well as potential environmental pollution are major disadvantages of these processes. Enzyme-catalysed bio-diesel production is, with its lower energy requirements and cleaner output, therefore a greener technology with all its environmental advantages.

As a response to the above drawbacks, funding was approved to the Vaal University of Technology to undertake the project that aims to clone and modify goat-gut lipases and immobilise them onto supports to treat waste oils. The waste oils are then converted into useable bio-diesel.[25]

OPEN GENOME PROJECT

A genome contains all of the information that a cell needs to develop, function, and reproduce itself, this makes it a critical element of life sciences and more specific precision medicine.

The Open Genome Project furthers the precision medicine agenda for South Africa. Genes causing specific disorders are well known, but risk management of diseases controlled by many gene sets and factors, such as breast cancer, remains a complex challenge.

The research team's experience in breast cancer genetics is world-renowned.[26] They have previously developed a combined research and service delivery platform linked to a genetic database to allow doctors and scientists to work together. A database was created of treatment options based on patient histories, genetic results, responses to chemotherapeutic treatments and tumour genetic results. Using this database, patients could be treated and managed to get considerable buy-in from local medical aid schemes. However, new genetic decoding technologies would allow them to accumulate more genetic information and further classify the disease, broadening the scope of treatment options available to patients. This will in future impact positively on many women suffering from breast cancer.

Table 21: Summary of committed SABDI funding.

Fund Value	R25m
Committed Funds	R21m
Amount disbursed to date	R3m
Surplus (includes operations)[27]	R4,1m

PROGRAMME PERFORMANCE

The SABDI team capacitation process commenced in August 2017, and the team achieved full implementation capacity during the year under review.

Collaborations with other similar partners within the NSI such as the MRC, ARC, the CSIR and the NRF will be strengthened going forward with the aim of amongst others attracting more funding to SABDI. Further, there will be an increased focus through workshops and activities on skills development for young black researchers.

25 Researchers: Dr Naser Feto (Vaal University of Technology) and Professor Cornelius Masuku (University of South Africa).

26 Researchers: Professors Maritha Kotze (University of Stellenbosch) and Tony Bunn.

27 Surplus funds (including interest earned) will be used to further the reach of the programme and is expanded on later.

15. STAKEHOLDER ENGAGEMENT

15.1 TIA'S CUSTOMER SATISFACTION SURVEY REPORT

TIA is committed to developing itself towards a high performance, customer centric and impactful organisation. It assesses its performance using the Balanced Scorecard approach, to which end the "customer perspective" is one of the critical considerations. TIA seeks to ensure excellence in serving its stakeholders.

In responding to a key oeprational performance indicator, TIA conducts an Annual Stakeholder Engagement Survey through an independent service provider. Genex Insights was appointed to run the annual survey for FY2017/18. The primary purpose of the survey was to gauge performance and effect improvements based on the recommendations. It is also a very effective mechanism to continually assess stakeholder expectations.

STAKEHOLDER GROUP	2016 STUDY	2017 STUDY	2018 STUDY
Innovators, Researchers & SMMEs (I,R&Ss)	222	318	244
Support Institutions (SIs)	107	123	147
Co-Funders	0	20	37
Total of the sample size	**329**	**461**	**428**

OVERALL SATISFACTION HAS ALSO INCREASED WITHIN THE INNOVATORS. RESEARCHERS AND SMMEs SEGMENT. SATISFACTION WITHIN THE 'DECLINED' WAS DRIVEN BY LOSS STAKEHOLDERS RATING 0-5 YEAR-ON-YEAR AND AN INCREASE IN STAKEHOLDERS RATING TIA BETWEEN 6-8, THUS SATISFIED.

OVERALL SATISFACTION WITH THE SERVICE RECEIVED FROM THE TECHNOLOGY INNOVATION AGENCY

SCALE WHERE 0 IS COMPLETELY DISSATISFIED AND 10 IS COMPLETELY SATISFIED **INNOVATORS, RESEARCHERS AND SMMEs**

APPROVED	2016	2017	2018	DECLINED	2016	2017	2018
0-5	38%	30%	34%	0-5	61%	71%	65%
6-8	39%	41%	47%	6-8	26%	24%	32%
9-10	23%	29%	19%	9-10	13%	6%	4%
AVERAGE	6.1	6.8	7.2	AVERAGE	4.3	3.6	5.3

Figure 10: Summary of results of Customer Engagement Survey FY2017/18.

The overall satisfaction increased by 1.3 from the previous year to 6.7 (out of 10). It is noted that with the increase in satisfaction, more respondents rated their satisfaction levels between 6 – 8. Furthermore, it is important to note that a percentage of the sample is made up of respondents who had their applications declined. This group is most critical in their feedback, but is also the group TIA must engage with and nurture for future projects, as losing them in the system is not acceptable.

Within the overall satisfaction rating, good service emanates from effective communication providing advice and support, whilst dissatisfaction is driven by poor response times, unclear processes and protracted lead times processing of applications.

Whilst TIA has seen a marginal improvement year-on-year, the most recent 6.7 (out of 10) rating still falls short of the target of 8.5. Various initiatives to effect improvement are in process, including implementing a paperless enterprise resource management tool to provide end-to-end seamless process integration. Further intensive training programmes for applicants will be initiated the year ahead.

15.2 STAKEHOLDER ENGAGEMENT ANALYSIS

TIA's stakeholder engagement activities for FY2017/18 were driven by several considerations. These include promoting a better understanding of the TIA mandate, the economic and science and technology policy context, the roles of other players within the NSI, and the strategic socio-economic challenges that TIA wishes to address by stimulating technological innovation.

Established in 2009, TIA is a relatively young organisation in the family of several Development Finance Institutions and research support organisations in South Africa. In an era where South Africa is seeing a hype of activity in the production of new ideas and innovations, it is important that TIA consistently communicates and engages with various stakeholders to promote its funding and non-financial support services.

The South African policy landscape is increasingly placing emphasis on innovation as a key driver for socio-economic development. Key policies, such as the NDP and Industrial Policy Action Plan, recognise the contribution that science, technology and innovation can make to support national development objectives of reducing poverty and inequality by 2030. Many government departments have embraced innovation to accelerate service delivery. In this, they constantly require advice and guidance in which TIA plays an important role.

In the same vein, there are many role players in the NSI that operate in isolation. The key challenge is to promote collaboration and ensure that the NSI is well-coordinated, promoting synergies in the execution of the role players' respective mandates. All these efforts are directed towards making the ecosystem productive and producing successful technologies and start-up companies that can create new products, jobs and effect economic growth.

TIA's Annual Stakeholder Engagement in Pretoria as part of its National Roadshow held during the FY2017/18.

KEY STAKEHOLDERS	FORMS OF ENGAGEMENT	EXPECTATIONS AND ISSUES
Shareholder Department of Science & Technology; Portfolio Committee (Parliament); National and Provincial Government.	Board Meetings; Quarterly meetings between TIA and DST Executive management; Quarterly and Annual Reports; Presentations to the portfolio committees (Science and Technology and Communications and Public Enterprises); Collaboration with national and provincial government departments.	Performance against targets: Impact on the economy; Job creation; transformation; Youth and women empowerment and enterprise support and development; Collaboration with other spheres of government; State owned enterprises; Contribution to Africa's development.
Customers Existing TIA clients; New applicants; Potential clients; (researchers from universities; science councils; research institutes; technology-based SMMEs; entrepreneurs and companies).	Existing clients; Customer Satisfaction Survey; Site visits for project assessment and post investment support; One-on-one meetings; Workshops; New applicants; Project definition workshops; Application building sessions; Training sessions; E-mails and grant management system; Interaction with portfolio managers; Potential clients; Website; Roadshows; Adverts for call for proposals; Walk-in centers.	Quality advice; Quick turn-around times for application and funding; Constant feedback; Regular communication; Transparency regarding decisions; Constant/timely update on changes in procedures, requirements and processes; Simplicity and speed of application processes; Responsiveness; Knowledgeable TIA staff with requisite technical and business expertise; Good quality post investment support; Increased role as connector, facilitator and enabler.
Partners Research institutions (HEIs and Science Councils); Co-funders; Follow-on Funders (e.g. venture capital companies; DFIs); Enterprise development.	Annual report; Direct communication; Bilateral engagement sessions with Executive and Management; Partnership (MoU); Steering committees; Issue-specific task teams and working committees; Panel discussions.	Good quality of funded projects from TIA; Consistent communication and feedback; Synergies in mandates, procedures and processes; Relevant products and services; Sharing expertise in key areas; Good governance, leadership and financial management.

KEY STAKEHOLDERS	FORMS OF ENGAGEMENT	EXPECTATIONS AND ISSUES
Communities (General public; local and rural communities; youth; HDIs and women)	Through workshops, seminars; roadshows and marketing campaigns; Stakeholder group-specific engagements e.g. youth; HDIs and women; Innovation Skills Development (ISD) for youth at school level; Youth Technology Innovation Programme (YTIP) targeting youth innovators including those in rural/ local communities and townships.	Innovative solutions that impact their local needs and challenges; Job opportunities through TIA supported companies; Sound advice on developing their ideas into innovative solutions; Awareness about TIA's mandate and services.
Employees	Employee Engagement Survey; Trade Unions; CEO staff address; TIA staff conference; "No staff left behind" workshops; E-mails; Meetings hosted by divisional executives or heads of strategic business units; Internal events and activities; Corporate strategy presentations; Performance reviews; Targeted presentations on various initiatives.	Quality of leadership; Communication of strategy; Work satisfaction and working environment; Career development, training and advancement; Reward and recognition; Fair labour practice; Open communication; and positive corporate culture.

15.3 COLLABORATION WITH OTHER STRATEGIC PARTNERS

During FY2017/18, TIA launched the "glass pipeline" model as a partnership programme to facilitate smooth transition of early stage research and innovation projects through the value chain. Critical to the "glass pipeline" is full visibility of the upstream and downstream partners, their activities and projects. The model aims to create an environment for seamless handover of projects between partner institutions in the innovation and funding value chain, to accelerate the process of commercialisation and start-up formation. Amongst these are partners in the research community, such as science councils and higher education institutions; private sector partners who run innovation competitions and provide enterprise development support; and regional and national development institutions. This model promotes porous boundaries that enable exchanges of staff and experts among partners.

Below are examples of selected partnerships that TIA established during the year under review.

15.3.1 PIPELINE DEVELOPMENT OF ICT INNOVATIONS

To strengthen its pipeline of innovations in the ICT sector and increase TIA's greater participation therein, a number of partnerships were pursued with, among others, mLab, the Small Enterprise Development Agency (SEDA) and the Tshimologong Digital Innovation Precinct. The mLab partnership has already borne fruit, enabling TIA to refer 80 mobile application for early stage research support with a

view to absorbing these into its technology development and pre-commercialisation support funds.

Through the partnership with SEDA, TIA joined forces with the French-tech Labs and contracted this entity as an implementation partner through the Seed Fund Programme. This will strengthen TIA's pipeline for future investments with the possibility of facilitating economic growth and creating jobs. French-tech in particular holds great potential for providing international market access opportunities for ICT applications into the French and European markets through partnership with France. Tshimologong Digital Innovation Precinct partnered with TIA for developmental support in the field of Prototype Makers on the Internet of Things (IoT), 3D printing, drones, etc.

15.3.2 SMALL ENTERPRISE DEVELOPMENT AGENCY (SEDA)

The collaboration with SEDA is aimed at the establishment of the Microalgal Technology Demonstration and Innovation Centre (MTDIC), a not-for-profit company that already has a Board of Directors in place. R2,6 million was disbursed to support the project.

TIA hosted the Centre for Entrepreneurship in Upington Technology Station as part of the one-stop shop model, which promotes the sharing of facilities.

A workshop was held with all SEDA incubators on 1 October 2017, to explain the qualifying criteria to become a seed fund implementing partner. The TIA/SEDA collaboration extends over many programmes at national level.

15.3.3 SCIENCE COUNCIL PARTNERSHIPS

An important, ongoing area of importance for TIA is to foster closer collaboration with science councils. In addition to a total of 26 universities (HEIs), South Africa has ten science councils that form the backbone of the country's research, development and innovation capability. TIA's primary aim is therefore to ensure that a greater proportion of this output translates into commercialisation opportunities that help solve socio-economic challenges. In this regard, formalised partnerships and collaborations exist with the Agricultural Research Council (ARC), South African Medical Research Council (SAMRC), Council for Scientific and Industrial Research (CSIR), the Water Research Commission (WRC) South African National Space Agency (SANSA) and the South African National Energy Development Institute (SANEDI).

15.4 COLLABORATION WITH THE INTERNATIONAL COMMUNITY

TIA's strategy on international partnerships is framed around South Africa's foreign policy, aiming to give expression to the range of bilateral Science and Technology Cooperation Agreements entered into by DST. At the core of this strategy is building strategic partnerships that bolster TIA's ability to effectively address South Africa's socio-economic challenges through innovation. The strategy therefore seeks to enhance South Africa's STI beyond research, promoting innovation partnerships and market-orientated research cooperation.

The strategy seeks to pursue five specific objectives,

a) Fund-raising for technology innovation and commercialisation, targeting international venture capital, development cooperation funds, and philanthropic/grant-making organisations;
b) Promoting bilateral collaborative Research, Development and Innovation (RDI) initiatives with strategically selected partner countries through like-minded sister institutions;
c) Promoting market access and international networking for TIA investees and other deserving, outward-looking technology-based SMMEs;
d) Facilitating capacity-building partnerships, consisting of skills transfer for innovation management, technology entrepreneurship and institutional-building for TIA and key NSI partners, with a particular focus on transformation; and
e) Positioning the TIA brand globally as the thought leader in innovation in Africa and beyond through participation in strategic high impact events.

Based on these objectives, TIA engaged with a range of international partners, mainly in Africa and Europe, to identify and build relationships for the benefit of the South African national system of innovation. Following is a summary of some of the main engagements undertaken in FY2017/18.

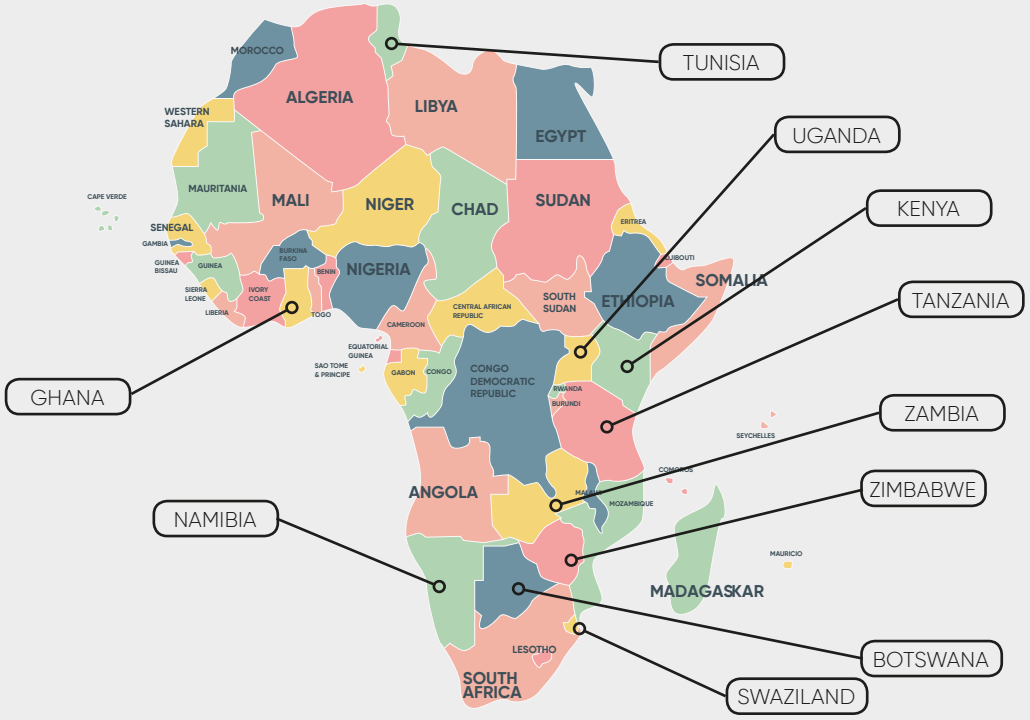


Figure 11: Stakeholder engagements in Africa during FY2017/18.

15.5 INTERNATIONAL BENCHMARKING VISIT

In May 2017, TIA undertook a bench-marking visit to three, specially selected countries that are considered leaders in innovation in Europe, i.e. Tekes[28] in Finland, Commission for Technology Innovation in Switzerland and Paris Saclay in France. These were selected as exemplary institutions for bench-marking purposes due to the impact they have made in their respective innovation eco-systems. Focusing on the imperative of building a sound, credible and competitive institution with visible impact in the South African NSI, TIA undertook this visit to study the business models, systems and process of some of the most successful TIA/NSI like-minded institutions in the world.

15.6 UNITED KINGDOM

TIA has partnered with the UK through the UK Royal Academy of Engineering to manage the Leaders in Innovation Fellowship initiative under the Newton Fund Programme. Through this initiative, TIA has enabled 25 innovators and SMMEs to benefit from international exposure in the UK that included market access, international funding, commercialisation training and networking. TIA and the Royal Academy of Engineering have run three programmes since 2014 through competitive calls. 25 participants have been spending two weeks in the UK in each respective year, gaining experience and skills that are vital for South Africa's future prosperity.

15.7 FRANCE

TIA partnered with the Embassy of France in South Africa to implement the Young Entrepreneurs Initiative (YEI). This programme aims to promote the internationalisation of South African entrepreneurs with promising technologies that have potential uptake in international markets. TIA and the Embassy of France have managed two competitions since 2016; and during the year under review nine SMMEs have benefited from the two-week programme hosted by RETIS, the French Incubation Association.

28 Now Business Finland

Workshop session between the Tanzanian delegation and TIA – 26 to 28 March 2018

15.8 THE AFRICAN AGENDA

During July 2018, South Africa joined more than 50 African states in signing the African Continental Free Trade Area (AfCTFA) agreement, which is aimed at facilitating a single market for goods and services on the continent. The African population of 1.20 billion people, mostly youth, creates major opportunities for collaboration on innovation and technology development for socio-economic impact.

Over the last few years, TIA has worked with several countries on the continent mainly around knowledge exchange, experience sharing and bench-marking activities. Whilst these were largely opportunistic and demand-driven, the year under review saw TIA establish a deliberate, focussed and pro-active Africa Programme with seed funding from DST. Under this Programme, TIA has established collaborative relationships with Ghana, Kenya, Uganda, Zimbabwe, Botswana, Tanzania, Namibia, Tunisia, Swaziland, Zambia and Egypt.

The Programme aims to enable collaboration through four key result areas:

a) Joint technology development initiatives that include the upscaling of research outputs funded under the NRF's international cooperation programmes;
b) Capacity building and technical assistance to African counterparts in building and strengthening their innovation ecosystems;
c) Entrepreneur internationalisation support initiatives, including a Soft Landing Programme; and
d) Twinning of technology infrastructure, including Technology Stations and Platforms.

15.8.1 TANZANIA

TIA launched the South Africa-Tanzania Research Upscale Programme, as the first initiative in FY2017/18 to support the translation of research outputs into commercialisation opportunities funded by its sister agency, the National Research Foundation (NRF). This programme included the hosting of two workshops in Pretoria and one workshop in Tanzania. The workshops primarily sought to share experience with the Tanzanian research community on how to develop bankable innovation proposals, innovation management and commercialisation. This initiative saw joint proposals between South African and Tanzanian researchers being funded.

15.8.2 TUNISIA

TIA supported DST in the South Africa-Tunisia Joint Technology Innovation Workshop held in Tunis from 25 to 27 September 2017. The workshop formed part of the review and evaluation of ten joint research projects supported by the NRF and the Ministry of Higher Education of Tunisia. The Action Plan, adopted as part of the outcome,

Workshop session between the delegation of Zambia and TIA.

included, amongst others, the launch of a second research call and more significantly, a joint technology innovation programme.

In response to this, TIA and the NRF hosted a joint workshop with a 15-member delegation from Tunisia to launch the Research Upscale Programme that included the development of necessary governance frameworks, tools and processes. The call for proposals will be issued in the next financial year, along with Tunisia hosting an IP and Technology Transfer Workshop that will also act as a capacity-building intervention by South Africa to the Tunisian research and innovation management community.

15.8.3 BOTSWANA

TIA participated in and delivered the keynote address at the Innovation Botswana 2017 event, held in Gaborone on 17 October 2017. This event brought together a range of NSI stakeholders in Botswana, including a showcase and exhibition of 15 young innovators who had developed various solutions in the clean-tech, ICT and agriculture sector. The event created opportunities for young entrepreneurs to showcase their products.

TIA has built a productive relationship with Botswana over the last two years which included the hosting of a benchmark and knowledge exchange workshop with the Botswana Innovation Hub in March 2017. All these interactions have led to the signature of a Memorandum of Understanding (MoU) in January 2018.

15.8.4 SWAZILAND

TIA hosted a three-member delegation from the Royal Swazi Technology Park (RSTP) on 17 October 2017, for a benchmarking visit as part of its capacity-building programme. The programme was centred around knowledge exchange on innovation management and commercialisation. In return, TIA also participated in the Swazi First Technology, Innovation and Entrepreneurship Forum event held from 14 to 16 November 2017, in Mbabane where TIA was invited

as keynote speaker. From this engagement, TIA and the RSTP agreed to sign a MoU. It is envisaged that this will take the same form as the collaboration with Botswana that emphasizes support for technology-based SMMEs.

15.8.5 ZAMBIA

TIA concluded the financial year under review with the hosting of a 25-member delegation from Zambia from 26 to 28 March 2018. This visit saw the launch of the RSA-Zambia Research Upscale Programme that will target 20 joint-research projects supported by the NRF and the Zambian National Science and Technology Commission.

15.8.6 SOUTHERN AFRICAN INNOVATION SUPPORT PROGRAMME (SAIS)

In June 2017, TIA signed a MoU with the Ministry of Foreign Affairs of Finland for the Implementation of the SAIS programme over four years. This programme is designed to promote regional innovation collaboration amongst five countries: Botswana, Namibia, Tanzania, Zambia and South Africa. The SAIS programme launched its first call for proposals, in which TIA played a key role to publicise and promote the uptake of the call in South Africa. For this purpose, TIA organised an information day for SAIS during its Annual Stakeholder Engagement session in Pretoria on 15 March 2018.

15.8.7 BIOSAFETY CAPACITY BUILDING

Through its BioSafety SA Technology Platform, TIA has played an important role in supporting the development of bio-safety policies and strategies in Africa. Biosafety SA is a national technology platform in service of the country's biotech regulators, researchers, technology developers and public. Over the years, BioSafety SA has emerged as a global thought leader on bio-safety and more specifically on Genetically Modified Organisms (GMO).

While bio-technological tools, such as tissue culture, genetic engineering and molecular breeding all continue to provide promising opportunities for achieving greater food security, there are many challenges associated with stakeholder buy-in to bio-technology innovations and products. This continues to negatively impact the ability of many governments to drive progress in this area of technology. BioSafety SA has developed one of the most sought-after BioSafety Communication Strategies on the continent. This strategy has found appeal in many African countries that have requested support from TIA in this regard. Biosafety SA participated in a number of forums, including:

- Kenya – The National Biosafety Authority - 3 to 6 October 2017, with the aim to strengthen bilateral relationship through the expansion of the shared network of experts and consensus building on important regulatory matters.
- Uganda – Agri-Biotechnology and Biosafety Communication (ABBC) 2017 Africa Symposium in Entebbe - 18 to 20 July 2017, focusing on the bio-safety communication and engagement programme. ABBC 2017 Africa Symposium gave Biosafety SA an opportunity to share experiences and best practice on bio-safety communication in Africa. ABBC is a platform for agricultural bio-technology and bio-safety communication stakeholders to actively exchange on experiences and best practice towards agricultural bio-technology and bio-safety communication.
- Zimbabwe – National Biotechnology Authority - 4 to 5 July 2017, with a focus on communication and engagement topics. The Zimbabwean Government requested South Africa to assist Zimbabwean experts in bio-safety risk assessment and synthetic biology.
- Botswana – NEPAD's third consultative meeting on the regulatory capacity building in Southern Africa in Gaborone - 25 to 28 June 2017, addressing bio-safety communication and engagement on gene drive technology. The aim of this meeting was to introduce participants, senior regulators and decision makers from the Southern African Development Community (SADC) to gene drive technology, how it can potentially be used to eradicate malaria and how the potential risks associated with the technology are assessed using problem formulation. The meeting provided Biosafety SA an opportunity to further establish itself as the regional expert and service provider, now also in terms of gene drives, which is a very recent and important focus in the region with potentially huge positive public health impacts.

PART C

GOVERNANCE

16.1 FRAMEWORK AND ACCOUNTABILITY

TIA was established to support the State, primarily, in its National Development Plan through the funding of technological innovation. TIA's strategic role is to accelerate economic growth through the stimulation and exploitation of innovation. As part of this strategic role TIA is expected to assist in the creation of an ecosystem that will enable is beneficiaries to advance concepts through to commercialisation.

TIA remains accountable to Parliament through the Parliamentary Portfolio Committee on Science and Technology and meets annually to report on is performance and its planning, against its medium term strategy.

The Accounting Authority, i.e. the TIA Board, was appointed on 1 May 2017 by the Executive Authority, the office of the former Honourable Minister of Science and Technology, Ms. Naledi Pandor. In terms of section 5 of the TIA Act, the Board is responsible for the overall governance of the organisation and to realise its strategic goals.

The Board in its first year of a 4-year term of office, brings a wide range of skills and experiences to ensure effective leadership. In so doing, the Board considers the practice of good corporate governance as a fundamental component contributing to the success of TIA's business. In the pursuit of, and in its commitment to the highest standards of governance, the Board provides strategic oversight and effective direction by adhering to the relevant codes of best practice, principles of fairness, integrity, responsibility and well-entrenched obligation to ensure accountability.

16.2 CODE OF CONDUCT

To support good governance, TIA adopted a set of Code of Ethics and Values and as part of its Policies and Procedures. The Code is adhered to in TIA's dealings with all stakeholders and organisations, both internally and externally and nationally and globally.

16.3 THE ACCOUNTING AUTHORITY

The Board comprises the following members who have met with the Honourable Minister's approval:

- Prof Edward Chr Kieswetter – (Chairman)
- Prof Roy Marcus (resigned)
- Mr. Thabiso Ramasike
- Ms. Fuzlin Levy-Hassen
- Dr Jan van de Loosdrecht
- Dr Judy Coates
- Dr Stephen Lennon
- Dr Mzwandile Madikizela
- Ms. Sebenzile Matsebula
- Dr Patience Mlengana

To ensure continuity, the former Honourable Minister, Ms. Naledi Pandor, re-appointed Dr S Lennon for a second term of office as he maintains his position as both a Board member and the Chairman of the Audit and Risk Committee (ARC). In addition, Ms. F Levy-Hassen, appointed as a co-opted member to the Investment and Finance Committee (IFC) by the previous Board, was recommended for full appointment to the Board as a member, and serves as the Chairperson of the IFC.

16.4 BOARD CHARTER

The Board conducts its activities through its Charter, acting as a focal point for managing its relationship with management, the shareholders and other stakeholders along sound governance principles, particularly those contained in the provisions of the Public Finance Management Act (Act No. 1 of 1999) and the King IV Report, to the following ends:

- Formulating strategic plans,
- Providing strategic direction,
- Monitoring of operational performance and management against annual performance targets,
- Providing oversight on the preparation and integrity of the annual financial statements and all related information,
- Defining levels of materiality and significance, reserving specific power to itself and delegating other matters with the necessary written authority to the established sub-committees and subsequently to the Chief Executive Officer,
- Maintaining adequate accounting records,
- Adequately safeguarding, verifying and maintaining accountability of assets,
- Preventing and detecting material misstatement and loss,

- Determining policy and processes to ensure the integrity of TIA's risk management and internal control procedures,
- Implementing proper systems of internal control which are designed to provide reasonable, but not absolute, assurance as to the reliability of the financial statements,
- Overseeing the implementation of an IT governance Framework,
- Receiving and considering recommendations and investment-funding decisions from its sub-committees,
- Receiving and considering reports from the Executive Committee and thereby providing guidance and assistance to the Executive Committee with regard to funding / investment decisions and in funding/ investment related matters,
- Monitoring the management of the funds by reviewing reports from management at sub-committee meetings that focus on the primary determinants of returns, including asset allocation and investment strategy,
- Providing guidance on TIA's:
  - organisational capability, organisational design and human resource strategy,
  - performance management systems, bonus and incentive programmes,
  - long range strategic plans and performance,
  - determining criteria to measure executive performance, including setting performance drivers and monitoring and evaluation mechanisms
- Ensuring that TIA complies with all relevant laws, regulations and codes of business practice, and that it communicates with its shareholders and relevant stakeholders (internal and external) openly and promptly and with substance prevailing over form;
- Developing a code of conduct that addresses conflicts of interest, particularly relating to Board members and Management; and
- Ensuring that there is an appropriate balance of power and authority on the Board, such that no individual or select individuals can dominate the Board's decision-making.

16.5 BOARD STRUCTURES AND MEETINGS

The Board operates and conducts itself through three standing sub-committees which report, and are ultimately accountable to it. The Board's devolution of responsibilities falls on the Audit and Risk Committee, the Investment and Finance Committee and the Human Resources & Remuneration Committee. These sub-committees meet independently and report regularly to the full Board through its respective Chairs. The scheduled meetings and attendance by Board members are summarised below.

16.6 THE BOARD

In the period under review the Board convened for four meetings. The first meeting held in May 2017 stretched over two days to accommodate an induction session.

Board Attendance Register

	BOARD MEETINGS	30 MAY 2017	31 MAY 2017	27 JULY 2017	27 NOV 2017	28 FEB 2018
Prof Edward Kieswetter	4	✓	✓	✓	×	✓
Prof Roy Marcus	1	×	×	✓	×	×
Mr. Thabiso Ramasike	5	✓	✓	✓	✓	✓
Ms. Fuzlin Levy-Hassen	5	✓	✓	✓	✓	✓
Dr Jan van de Loosdrecht	4	✓	✓	×	✓	✓
Dr Judy Coates	4	✓	✓	✓	×	✓
Dr Mzwandile Madikizela	5	✓	✓	✓	✓	✓
Ms. Sebenzile Matsebula	4	✓	×	✓	✓	✓
Dr Patience Mlengana	2	✓	✓	×	×	×
Dr S Lennon	5	✓	✓	✓	✓	✓

✓ In attendance × Apology received **B** Absent without an apology **R** Resigned as a member

12.7 THE AUDIT AND RISK COMMITTEE

Chairman: Dr Stephen Lennon

Members: Prof Roy Marcus (resigned 7 March 2018)
Dr Jan van de Loosdrecht
Mr. Thabiso Ramasike

The Committee convened for a total of five times in the period under review, one of which was a special meeting.

MEMBER	NO. OF MEETINGS ATTENDED	30 MAY 2017	20 JULY 2017	27 JULY 2017	16 NOV 2017	16 FEB 2018
Dr Stephen Lennon (Chairman)	4	✓	✓	×	✓	✓
Prof Roy Marcus	2	×	✓	✓	×	×
Dr Jan van de Loosdrecht	4	✓	×	✓	✓	✓
Mr. Thabiso Ramasike	5	✓	✓	✓	✓	✓

12.8 THE INVESTMENT AND FINANCE COMMITTEE

Chairman: Ms. Fuzlin Levy-Hassen

Members: Dr Jan van de Loosdrecht
Dr Judy Coates
Dr Mzwandile Madikizela
Mr. Thabiso Ramasike

The Committee convened for a total of three times in the period under review

MEMBER	NO. OF MEETINGS ATTENDED	6 JULY 2017	17 NOV 2017	29 JAN 2018
Ms. Fuzlin Levy-Hassen	3	✓	✓	✓
Dr Jan van de Loosdrecht	3	✓	✓	✓
Dr Judy Coates	3	✓	✓	✓
Dr Mzwandile Madikizela	3	✓	✓	✓
Mr. Thabiso Ramasike	2	✓ (invitee)	✓ (invitee)	(Rotated off)

16.9 THE HUMAN RESOURCE AND REMUNERATIONS COMMITTEE

Chairman: Ms. Sebenzile Matsebula
Members: Mr. Mzwandile Madikizela
Dr Patience Mlengana
Mr. Thabiso Ramasike
Dr Judy Coates

The Committee convened a total of four times in the period under review.

MEMBER	NO. OF MEETINGS ATTENDED	20 JULY 2017	11 AUG 2017	09 NOV 2017	12 FEB 2018
Ms. Sebenzile Matsebula (Chairperson)	4	✓	✓	✓	×
Mr. Mzwandile Madikizela	4	✓	✓	✓	✓
Dr Patience Mlengana	3	✓	✓	✓	×
Mr. Thabiso Ramasike	4	✓	✓	✓	✓
Dr Judy Coates	2	×	✓	×	✓

The TIA Board has recognised the relevance and significance of TIA's role in the National System of Innovation and has prioritised strategic areas of focus for the successful implementation of TIA's mandate. The Board met at a strategy session workshop from 17 – 19 July 2017, to define areas for improvement and determine prospective initiatives to strengthen TIA's position in the NSI.

16.10 BOARD RESIGNATION

Professor Roy Marcus resigned from the Board on 7 March 2018. This resignation poses no risk to the current constituency and the new Minister, Ms. Mmamoloko Kubayi-Ngubane, is yet to advise on the filling of the position. As it stands the membership of the Board is fully compliant with the provisions of the TIA Act.

16.11 BOARD REMUNERATION

Board members receive fees for services they render to the Board and the Executive Authority in accordance with the relevant tariffs determined by National Treasury, regulated and updated from time to time and approved by the Minister of Science and Technology. The summary of the remuneration paid to the Board for the accounting period is illustrated on page 162 herein.

All travel costs, such as airfares and car hire, are paid for by TIA. The Board is further reimbursed for actual costs for incidentals such as airport parking costs, toll fees, Gautrain fares, and for the use of their personal vehicles, reimbursed per kilometre as permitted by TIA's travel policy.

16.12 FINANCIAL INTEREST DISCLOSURES AND INDEPENDENCE

Annually, and on an ad hoc basis, through active solicitation, Board members are required to disclose potential conflicts of interests. Disclosures received from members were closely scrutinised by the Company Secretary and the Chairman of the Audit and Risk Committee. No conflicts nor potential conflicts of interests were noted for the year under review. Where required members are recused from matters which may give rise to conflicted interests. Members are regularly encouraged to disclose potential conflicts at every meeting.

Standing from left to right: Mr. B. Manilal (CEO), Dr Mzwandile Madikizela, Dr Jan van de Loosdrecht, Prof Roy Marcus, Dr Patience Mlengana, and Mr. Thabiso Ramasike.

Seated from left to right: Dr S Lennon, Ms. Sebenzile Matsebula, Prof Edward Kieswetter, Ms. Fuzlin Levy-Hassen, and Dr Judy Coates.

16.13 TRAINING AND DEVELOPMENT

The Board underwent governance training provided by Dr Len Konar as the external service provider, which was well received.

16.14 BOARD AND SUB-COMMITTEE EVALUATIONS

In line with Principle 9 of the King IV report, the Board and its sub-committees undertook to conduct a self-review on its performance. The Company Secretary through a questionnaire, conducted the exercise to determine the effectiveness of the Board and its sub-committees. Given the responses and the scores obtained, it was concluded that the Board and its sub-committees have fully discharged their fiduciary duties, inter alia, in that:

- the Board is well balanced,
- meetings are effectively run by each Chair of the sub-committees,
- the members are aware of their responsibilities and the requirements of their role in line with the Charters that govern the Board and its sub-committees,
- members are well equipped in skill and knowledge to contribute to TIA's current strategy and implementation of its annual plan.

As further prescribed by the provisions of Principle 9, the Board will be evaluated by an external facilitator at least twice during their term of office.

16.15 COMPANY SECRETARY

The self-review included a review of the performance of the Company Secretary. Given the response by members, the Board was of the view that the Company Secretary provides adequate support.

17. TIA
BOARD MEMBERS

PROF EDWARD CHR KIESWETTER

Chairman of the Board

Masters Commerce cum laude, NWU, 2007

Masters Business Administration, Henley UK, 2001

Masters Science Education (Cognitive Development), UWC, 1996

Academic Associate (Cognitive Development), Harvard University, 1991

Bachelor Education (honours) (Mathematics & Science), UWC, 1988

PG Dip Education (Engineering & Mathematics Ed), 1986

Engineering Dip (Electrical), CPUT, 1983

Industrial Instrumentation Apprenticeship, Athlone Technikon, 1981

FIELD OF EXPERTISE

Engineering

DR STEPHEN LENNON

Member

BSc, MSc (Engineering), PhD

FIELD OF EXPERTISE

Energy Sector, sustainability and the National System of Innovation

DR JAN VAN DE LOOSDRECHT

Member

Utrecht University - Ph.D. Chemistry

Luminescence' at the Dipartimento di Chimica dell' Universita, Bologna, Italy

FIELD OF EXPERTISE

Research and Development, Chemistry, Catalysis, and Materials Science

DR JUDY COATES

Member

PhD in Organic Chemistry at the University of Johannesburg (RAU)

FIELD OF EXPERTISE

Bio-medical and Organic Chemistry

DR MZIWANDILE MADIKIZELA

Member

M.B.A.-Wits Business School

Ph.D. (Biochemistry)-University of Iowa, USA
M.Sc. (Biochemistry) -University of Iowa

B.Sc. (Hons, Biochemistry)-University. of Fort Hare
B.Sc. (Chemistry and Biochem)-University. of Fort Hare

Certificate in Technology Management, University of Pretoria

Executive Coaching, University of Cape Town

Certificate in Programme Leadership Coaching, WBS

FIELD OF EXPERTISE

Chemistry and Bio-chemistry

MS. FUZLIN LEVY-HASSEN

Member

Bachelor of Commerce (Honours in Accounting) University of Cape Town

Certificate in Venture Capital from UC Berkley, Haas School of Business

Post-graduate Diploma in Accounting from the University of Cape Town

Bachelor of Commerce, University of Cape Town

FIELD OF EXPERTISE

Expert in due diligences, venture capital and private equity; Expert in appraising investment proposals, performing detailed analysis on investment opportunities, deal closure, structuring of deals and preparing different reports and presenting to various committees; Expert in managing investments addressing and solving complex issues; Expert in financial modelling, financial analysis, business analysis, strategic business planning and negotiations; Expert in preparing and monitoring financial plans/ projections; Expert in turnaround and recovery plans

DR PATIENCE MLENGANA

Member

B. A in Social Sciences and a post-graduate B.Bibl from the

University of the North

B. Bibl Honours from Rand Afrikaanse University. PhD

FIELD OF EXPERTISE

Management of inter-personal communication in work places

MR. THABISO RAMASIKE

Member

International Executive Development Programme (BANKSETA), York Business School, (University of York – Canada)

Senior Executive Leadership Development Programme, Gordon Institute of Business Science, (University of Pretoria) – 2005

Certified Associate (CAIB (SA), Institute of Bankers in Southern Africa – 2003.

BCom, University of Johannesburg (formerly Vista University) – 1994

FIELD OF EXPERTISE

Banking and Finance

MS. JOY SEBENZILE MATSEBULA

Member

University of Saskatchewan, Saskatoon, Canada- Ph.D. (Incomplete) – Biometrics

Pennsylvania State University, State College, USA- MS – Biometrics

University of Botswana and Swaziland, Botswana- BSc – Natural Sciences; Environmental Sciences & Biometrics

FIELD OF EXPERTISE

Environmental Sciences & Biometrics

PROF ROY MARCUS

Member (Resigned 7 March 2018)

BSc in Mechanical Engineering from the University of the Witwatersrand

Awarded the degrees of MSc and PhD for research work conducted in the field of pipeline transportation of solids.

Awarded the degree Doctor Technologiae honoris causa from the Technikon Witwatersrand.

FIELD OF EXPERTISE

Mechanical Engineering

PART D

HUMAN RESOURCE MANAGEMENT

18.1. SUMMARY

The Human Resources objectives for the year under review were the implementation of the Talent Management Strategy, and a refined recruitment and selection process to ensure the organisation has adequate and appropriate human resources to achieve its strategic objectives. Training and development, governance and compliance were further areas of focus to ensure that TIA adhered to policies for operational excellence and risk mitigation.

Since employee wellness significantly affects productivity and retention of skilled staff, TIA created greater awareness of its Employee Wellness Programme. Employees were encouraged to participate in the programme in order to better manage their health profile and overall wellness. The Talent Management Strategy was implemented to support the organisation's ambition of being an employer of choice as well as a centre of excellence. Whilst attracting the best talent fit within the market, it is also critical to retain TIA's top performers, the most talented and skilled employees to carry out the organisation's mandate of stimulating technological innovation for socio-economic impact.

Performance Management, Talent Management and the Training and Development Plan were fundamental processes in propelling an organisation from average performance to good performance and ultimately to great performance.

18.2. TRAINING AND DEVELOPMENT

TIA operates in a unique environment, therefore the skills mix required to implement its mandate is not readily available in the market. As a result, TIA invested disproportionately in the training and development of its employees to close the competency and skills gaps. The following domains below (see training report table) indicate the amount of personnel training needed to meet the immediate operational requirements and for TIA to build the skills of its own workforce and strengthen the leadership skills in the organisation.

Training Report

TRAINING TYPE	TRAINING INTERVENTIONS
Mandatory (Training required to improve performance)	162
Statutory (Training conducted to comply with legislative requirements)	15
Formal Qualifications	14
Leadership Training	28

The Trainee Development Programme and the Cadet Leadership Programme, two flagship interventions that seek to address the pipeline of future leaders, are critical to the organisation's succession planning in key management and leadership positions.

18.3.1 TRAINEE/INTERNSHIP DEVELOPMENT PROGRAMME

The purpose of the programme is to create job opportunities for young graduates to acquire relevant competencies through experiential training within TIA. The programme provides trainees with various skills through workplace experience, including appropriate training to harness their full leadership potential, project management, critical thinking and business management. This empowers them to apply for relevant vacancies within TIA and the NSI upon completion, based on the skills they acquired.

During the year under review, a total of three Trainees were placed within the organisation.

18.3.2 CADET LEADERSHIP PROGRAMME

The inaugural intake of the Cadet Leadership Programme commenced in the final quarter of the year under review. The programme is structured as an intensive, seven-month programme, culminating in a real project for implementation within the organisation. This NQF 8 equivalent programme is run through independent facilitators covering various modules, amongst them self-awareness, critical skills thinking and systems thinking. 26 employees were included in the first cohort of cadets. The programme, which is nurturing talent for our future prosperity, is planned to run for three consecutive years with a new intake of cadets each year.

18.3. TALENT MANAGEMENT STRATEGY

In order to strengthen the organisation's delivery capability and resilience, TIA embarked on an organisation-wide competency assessment processes. The purpose of the assessments was to identify competency gaps between the requisite competencies and individuals' competency profiles to ultimately structure an effective and personalised development programme for each staff member. All staff members completed their competency assessments online and received feedback on the results. Their Personal Development Plans (PDPs) for the FY2018/19 will see a suite of interventions being implemented to enable them to function optimally.

18.4 EMPLOYEE ENGAGEMENT

TIA's desired end state is being a national NSI centre of competence. This requires not only the correct systems, processes and skills match, but also the emotional commitment of every employee to the organisation, its strategy and mandate. An engaged workforce guarantees improved performance, higher levels of morale and a positive organisational culture.

TIA runs its engagement survey annually through an accredited independent service provider. The year-on-year trends are analysed and interventions seeking corrective action are implemented.

The annual Employee Engagement survey was conducted by PriceWaterhouseCoopers (PWC) as contracted by TIA. A 90,5% participation rate was achieved, which was a strong initial indicator of staff involvement but not necessary staff engagement.

Employee engagement survey participation rate

SURVEY DATE	TOTAL GROUP SIZE	TOTAL SAMPLE PARTICIPATED (N)	% PARTICIPATED
2018	158	143	90,5%

The year under review's employee engagement target of 3.8 (out of 5) was achieved with very good recommendations based on the analysis. The results also reflected some very positive shifts in staff's commitment and alignment to the organisation's developmental status and values.

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18.5 PERFORMANCE MANAGEMENT

TIA positions itself as a high performance oriented entity; effective performance management is at the core of its strategic and operational performance. The organisation's performance management process is one of the key drivers of organisational performance in line with its obligations to effectively delivering on its mandate. The process has gained traction in TIA with the line managers trained and coached by the Human Resources unit to optimally manage the process in line with organisational targets. The process enables TIA to objectively and fairly identify high performers, and reward and retain them for operational excellence. It also is a critical tool for managing underperformance as well as counselling and developing of performance improvement plans. This function will continue as a focal area in the next financial year as TIA drives its high-performance culture forward.

18.6. DEVELOPMENT OF THE TOTAL REWARDS STRATEGY

One of the most important stakeholders of TIA is its staff. The organisation is cognisant of the country's poor economic performance and its impact on all citizens. A fair and optimal reward and recognition scheme is a fundamental building block in all human resource processes. Additional to TIA's guaranteed salaries, a recognition scheme was developed to reward employees who excel in demonstrating the TIA culture and are aligned to the organisational values. The scheme comprises of financial and non-financial rewards that are beneficial to employees and their families. The scheme will be launched in the new financial year in line with the organisational transformation approach.

In accordance with TIA's remuneration strategy all salaries are benchmarked and managed in accordance with the appropriate policies.

TIS's total staff compliment consists of 170 positions (as at 31 March 2018) of which 144 were filled (at that time), as per the table below.

OCCUPATIONAL LEVELS	MALE				FEMALE				FOREIGN NATIONALS		TOTAL
	A	C	I	W	A	C	I	W	MALE	FEMALE	
Top management	1	0	1	2	0	0	0	1	0	0	5
Senior management	10	2	1	0	4	0	3	1	0	0	21
Professionally qualified and experienced specialists and mid-management	15	4	1	3	23	0	6	8	3	0	63
Skilled technical and academically qualified workers, junior management, supervisors, foremen, and superintendents	10	0	0	0	29	5	0	1	0	0	45
Semi-skilled and discretionary decision making	2	0	0	0	2	1	0	0	0	0	5
Unskilled and defined decision making	0	0	0	0	5	0	0	0	0	0	5
TOTAL PERMANENT	**38**	**6**	**3**	**5**	**63**	**6**	**9**	**11**	**3**	**0**	**144**
Temporary employees	0	0	0	0	0	0	0	0	0	0	0
GRAND TOTAL	**38**	**6**	**3**	**5**	**63**	**6**	**9**	**11**	**3**	**0**	**144**
ADDITIONAL INFORMATION											
People with disabilities (included in the total number of employees)	**0**	**1**	**0**	**2**	**3**	**0**	**0**	**0**	**0**	**0**	**6**

Staff Equity and Disability Profile as at 31 March 2018, excluding Platforms and Technology Stations

PART E

ANNUAL FINANCIAL STATEMENTS

AUDIT AND RISK COMMITTEE STATEMENT

The Audit and Risk Committee is appointed in terms of Section 94 (2) of the Companies Act No. 71 of 2008, Section 51 of the Public Finance Management Act (Act No. 1 of 1999), and read with principle 8 of the King IV Report on Corporate Governance. The Committee has performed its duties and carried out its responsibilities in accordance with its annually reviewed Charter, as well as executed on specific duties delegated to it by the full Board.

The Audit and Risk Committee Charter empowers the Committee, inter alia, to:

- examine and review the Annual Financial Statements and report on the final results;
- appoint and evaluate the qualification, appropriateness, eligibility and independence of the external auditor;
- approve the internal audit plan, internal audit charter and fees of the external auditor;
- evaluate the scope and effectiveness of the internal audit function with a view to ensuring that effective internal controls have been identified and are in place;
- ensure that TIA complies with regulatory requirements both legal and financial;
- evaluate the adequacy and efficiency of the internal control systems, accounting practices, information systems and auditing processes applied in the management of TIA;
- discharge its duties relating to the safeguarding of assets, the implementation of adequate IT systems, effective control processes and the preparation of accurate financial reporting and statements in compliance with all applicable legal requirements and accounting standards;
- monitor financial and all other risks; ensuring that mitigating action plans are in place.

QUARTERLY PERFORMANCE REPORTS TO THE EXECUTIVE AUTHORITY

TIA has reported quarterly to its Executive Authority as is required by the provisions of section 5.3.1 of the National Treasury Regulations, read together with Section 27(4) and 40 of the Public Finance Management Act No. 1 of 1999 (PFMA). In the period under review the Committee ensured compliance with Treasury Regulation 5.3.1 for the establishment of such procedures. In consideration of the reports throughout the year, the Committee guided management on review of targets, qualitative data and an automated system supported by an adequate tool to generate credible information when performance is monitored and reported.

ANNUAL FINANCIAL STATEMENTS

The Committee reviewed the Annual Financial Statements and agreed that the statement presented fairly, in all material respects, the consolidated financial position of TIA. The Committee concluded further that it was satisfied that the statements complied with General Reporting Accounting Standards.

However, it was noted that the year-end results ended in an increase in staff costs, noticeable underspend in project costs and the failure to secure other income as committed. This would be monitored on a quarterly basis going forward.

INTERNAL AUDIT

The internal audit function remains in-house and the unit has maintained their level of independence. The purpose, authority and responsibility of the internal audit unit are encapsulated in the Internal Audit Charter which is reviewed and approved annually by the Audit and Risk Committee and the Board and has been for this year. The Head of the Unit reports functionally to the Chairman of the Audit and Risk Committee and administratively to the CEO.

The internal controls in place are based on established procedures and supported by a sound audit methodology. The effectiveness of these controls is measured through the performance of internal audits, audit reports, advisory engagements and regular reporting to the Audit and Risk Committee and the CEO.

The Internal Audit Unit is appropriately capacitated with skilled personnel, with an appropriate segregation of duties. During the conducting of audits, a system of rotation is exercised annually within the unit to ensure transparency, fairness and responsible objective reporting. Where required, the internal audit function is requested to perform ad hoc tasks and investigations by the CEO and the Chairman of the Audit and Risk Committee.

In the year under review no evidence was presented to suggest that there were material breakdowns in, or threats to the internal control environment. No critical areas of weaknesses in financial control have been tabled before the Audit and Risk Committee and posed limited threats to the preparation of the financial statements. Accordingly, the financial statements were recommended to the Board for approval.

A year-on-year comparison in internal audit showed a marked improvement in critical areas. All recommendations provided by Internal Audit have been appreciated and adopted where applicable. In respect of critical and repeat findings Management has demonstrated a commitment to remedy and better manage areas of weaknesses, which have progressively shown an improvement.

EXTERNAL AUDIT

The external auditors, Ngubane & Co remain on record with oversight by the office of the Auditor General. The Audit and Risk Committee was satisfied that they have complied with sections 90(2)(b) and 94(8) of the Companies Act (Act No. 71 of 2008) (as amended) and confirms that there are no conflicts of interest as determined by the criteria prescribed by the Independent Regulatory Board for Auditors.

The Committee, in consultation with Management, agreed to the terms contained in the engagement letter, audit plan and audit fees for the financial year ended 31 March 2018. In consideration of the external audit plan the Committee was satisfied that it is comprehensive and adequately interrogates the risk areas identified. The external auditors remain independent and no non-audit services were provided. In further consideration of their services and engagement with the external auditors, the Audit Committee was satisfied that:

- The quality and effectiveness of their services were appropriate,
- In camera sessions with the exclusion of Management were held when required,

- A level of assurance was provided to confirm that Ngubane & Co maintained its integrity as a firm through open and transparent processes and accordingly posed no risk to TA during the execution of their duties.

GOING CONCERN

Management provided assurance that TIA is a going concern. Through its annual funding allocation received from its Executive Authority, income from royalties and interest received, there appeared to be no indicators to suggest that TIA will not continue as a going concern for the next twelve months.

REPORTABLE IRREGULARITIES

No reportable irregularities were identified by the external auditors.

FRAUD PREVENTION

A policy and procedure are in place together with an anonymous ethics line to manage potential concerns raised. In the period under review no complaints or concerns on potential fraud were raised.

RISK MANAGEMENT

Risk Management remains central to the business of TIA. Key strategic risks were identified and deliberated upon by both Management and the Board. Risks were evaluated in terms of impact and likelihood. Appropriate actions and action plans have been considered and implemented were required to mitigate risks. Management is aware of the need to improve risk management in so far as the following:

- Better treatment of residual risks.
- Detailed explanations of risk and its corresponding actions of mitigation.

The internal control processes related to risk are regularly reviewed by Management through its Risk Steering Committee. Actions are delegated to staff with the encouragement to embed risk management in the execution of their daily tasks.

IT GOVERNANCE

The Audit and Risk Committee is responsible for monitoring IT governance. The approved IT policies in place and the procedures which have been implemented safe guard TIA's IT systems, its information and the disaster recovery plans. There were no material weaknesses found in the IT environment.

GOVERNANCE ON QUALITY

The Committee was pleased to learn of Management's achievement in obtaining the ISO 9001:2015 Quality Certification. This standard is used to demonstrate the ability to consistently provide products and services that meet customer and regulatory requirements. Management remains committed to maintaining the accreditation.

On behalf of the Audit and Risk Committee.

Dr Steve Lennon
Chairman

BOARD'S RESPONSIBILITIES & APPROVAL

The Board is required by the Public Finance Management Act (Act No. 1 of 1999), to maintain adequate accounting records and is responsible for the content and integrity of the consolidated and separate financial statements and related financial information included in this report. It is the responsibility of the Board to ensure that the consolidated and separate financial statements fairly present the state of affairs of the entity and its controlled entities ("the economic entity") as at the end of the financial year and the results of its operations and cash flows for the period then ended. The external auditors are engaged to express an independent opinion on the consolidated and separate financial statements and were given unrestricted access to all financial records and related data.

The consolidated and separate financial statements have been prepared in accordance with Generally Recognised Accounting Practices (GRAP) including any interpretations, guidelines and directives issued by the Accounting Standards Board.

The consolidated and separate financial statements are based upon appropriate accounting policies consistently applied and supported by reasonable and prudent judgements and estimates.

The Board acknowledges that it is ultimately responsible for the system of internal financial control established by the economic entity and places considerable importance on maintaining a strong control environment. To enable the Board to meet these responsibilities, the Board sets standards for internal control aimed at reducing the risk of error in a cost effective manner. The standards include the proper delegation of responsibilities within a clearly defined framework, effective accounting procedures and adequate segregation of duties to ensure an acceptable level of risk. These controls are monitored throughout the economic entity and all employees are required to maintain the highest ethical standards in ensuring the economic entity's business is conducted in a manner that in all reasonable circumstances is above reproach. The focus of risk management in the economic entity is on identifying, assessing, managing and monitoring all known forms of risk across the economic entity. While operating risk cannot be fully eliminated, the economic entity endeavours to minimise it by ensuring that appropriate infrastructure, controls, systems and ethical behaviour are applied and managed within predetermined procedures and constraints.

The Board is of the opinion, based on the information and explanations given by Management, that the system of internal control provides reasonable assurance that the financial records may be relied on for the preparation of the financial statements. However, any system of internal financial control can provide only reasonable, and not absolute assurance against material misstatement or deficit.

The Board has reviewed the economic entity's cash flow forecast for the year to 31 March 2019 and, in the light of this review and the current financial position, they are satisfied that the economic entity has access to adequate resources to continue in operational existence for the foreseeable future.

The financial statements set out on pages 130 to 168, which have been prepared on the going concern basis, were approved by the Board on 30 May 2018 and were signed on its behalf by:

Prof Edward Chr Kieswetter
Chairman

INDEPENDENT AUDITOR'S REPORT

REPORT OF NGUBANE & CO TO THE MEMBERS OF THE BOARD ON TECHNOLOGY INNOVATION TIA[29]

OPINION

We have audited the consolidated and separate financial statements of the Technology Innovation TIA Group and its subsidiaries set out on pages 130 to 168, which comprise the consolidated and separate statement of financial position as at 31 March 2018, the consolidated and separate statement of financial performance, statement of changes in net assets, and cash flow statement and the statement of comparison of budget information with actual information for the year then ended, as well as the notes to the consolidated and separate financial statements, including a summary of significant accounting policies.

In our opinion, the consolidated and separate financial statements present fairly, in all material respects, the consolidated and separate financial position of the Technology Innovation Agency Group as at 31 March 2018, and their financial performance and cash flows for the year then ended in accordance with the Generally Recognised Accounting Practice (GRAP) and the requirements of the PFMA.

BASIS FOR OPINION

We conducted our audit in accordance with the International Standards on Auditing (ISAs). Our responsibilities under those standards are further described in the auditor's responsibilities for the audit of the consolidated and separate] financial statements section of this auditor's report.

We are independent of the Public Entity in accordance with the Independent Regulatory Board for Auditors' *Code of professional conduct of registered auditors* (IRBA code) and other independence requirements applicable to performing audits of the financial statements in South Africa. We have fulfilled our other ethical responsibilities in accordance with the IESBA code and in accordance with other ethical requirements applicable to performing audits in South Africa. The IRBA code is consistent with the International Ethics Standards Board for Accountants' *Code of ethics for professional accountants* (parts A and B).

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our unqualified opinion.

KEY AUDIT MATTERS

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated financial statements and in forming our opinion, and we do not provide a separate opinion on these matters.

29 It is herewith recorded that this External Audit opinion contained in this section is solely related to TIA's AFS and final APP performance information (Note: This report was reviewed by Ngubane & Co for adequacy and accuracy).

Table 33: Key Audit Matters and how they were addressed

KEY AUDIT MATTERS	HOW OUR AUDIT ADDRESSED THE KEY AUDIT MATTER
GOING CONCERN	
In terms of ISA 570, the going concern assumption implies that an entity is viewed as continuing in business for the foreseeable future. The auditor's responsibility is to obtain sufficient appropriate audit evidence about the appropriateness of management's use of the going concern assumption in the preparation of the financial statements and to conclude whether there is a material uncertainty about the entity's ability to continue as a going concern.	As per discussion with management, our considerations on whether any adverse events/conditions exist that may cast significant doubt on the entity's ability to continue as a going concern for the next twelve months are satisfied as TIA receives funding from DST and other income is from royalties and interest received. Neither financial nor operational indicators that may cast doubt on the entity's ability to continue as a going concern were identified.
REPORTABLE IRREGULARITIES	
In terms of the Auditing Professions Act definitions, a reportable irregularity is described as any unlawful act or omission committed by any person responsible for the management of the entity, which: a) Has caused or is likely to cause material financial loss to the entity or to any partner, shareholder, creditor or investor of the entity in respect of his, her or its dealings with that entity; or b)Is fraudulent or amounts to theft; or c) Represents a material breach of any fiduciary duty owed by such person to the entity or any partner, member.	Professional scepticism was maintained by the audit team always throughout the course of the audit and no possible reportable irregularities have been identified.
FRAUD AND ILLEGAL ACTS	
Fraud is described in ISA 240 as an intentional act by one or more individuals among management, those charged with governance, employees, or third parties, involving the use of deception to obtain an unjust or illegal advantage. The primary responsibility for the prevention and detection of fraud rests with both those charged with governance of the entity and management. An auditor conducting an audit in accordance with ISAs is responsible for obtaining reasonable assurance that the financial statements taken as a whole are free from material misstatement, whether caused by fraud or error.	Risk assessment procedures were performed to obtain an understanding of the entity including its internal control. Risks of material misstatement due to fraud at the financial statement level, and at the assertion level for classes of transactions, account balances and disclosures were identified and audit procedures were performed to address the identified risks to minimise these to an acceptable level. Audit evidence was obtained for all identified risks and evaluated. Written representations were also received in the form of the signed management representation letter asserting that the financial statements are free of material errors and no instances of fraud occurred. The audit team maintained professional scepticism always throughout the audit.
MANAGEMENT JUDGEMENT AND ACCOUNTING ESTIMATES	
In accordance with ISA 540, accounting estimates are those financial statements items that cannot be measured precisely, but can only be estimated. They are an approximation of a monetary amount in the absence of a precise means of measurement.	We have reviewed the outcome of accounting estimates included in the prior period financial statements, for the purpose of the current period. Accounting estimates included among others the leave provision, bonus provision as well as the depreciation expense for the year. We then tested how management made the accounting estimates and the data on which they are based. We also assessed whether management has appropriately applied requirements of the applicable financial reporting framework relevant to the accounting estimates and whether the methods for making the accounting estimates are appropriate and have been applied consistently. No material differences were identified.

RESPONSIBILITIES OF ACCOUNTING AUTHORITY FOR THE FINANCIAL STATEMENTS

The members of the Board, which constitutes the accounting authority is responsible for the preparation and fair presentation of the consolidated and separate financial statements in accordance with GRAP and the requirements of the PFMA, and for such internal control as the accounting authority determines is necessary to enable the preparation of consolidated and separate financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated and separate financial statements, the accounting authority is responsible for assessing the Technology Innovation Agency Group's ability to continue as a going concern, disclosing, as applicable, matters relating to going concern and using the going concern basis of accounting unless the accounting authority either intends to liquidate the Public Entity or to cease operations, or has no realistic alternative but to do so.

AUDITOR'S RESPONSIBILITIES FOR THE AUDIT OF THE CONSOLIDATED AND SEPARATE FINANCIAL STATEMENTS

Our objectives are to obtain reasonable assurance about whether the consolidated and separate financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the ISAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated and separate financial statements.

A further description of our responsibilities for the audit of the consolidated and separate financial statements is included in the annexure to this auditor's report.

REPORT ON THE AUDIT OF THE ANNUAL PERFORMANCE REPORT

INTRODUCTION AND SCOPE

In accordance with the Public Audit Act of South Africa, 2004 (Act No. 25 of 2004) (PAA) and the general notice issued in terms thereof, we have a responsibility to report material findings on the reported performance information against predetermined objectives for selected objectives presented in the annual performance report. We performed procedures to identify findings but not to gather evidence to express assurance.

Our procedures address the reported performance information, which must be based on the approved performance planning documents of the Public Entity. We have not evaluated the completeness and appropriateness of the performance indicators included in the planning documents. Our procedures also did not extend to any disclosures or assertions relating to planned performance strategies and information in respect of future periods that may be included as part of the reported performance information. Accordingly, our findings do not extend to these matters.

We evaluated the usefulness and reliability of the reported performance information in accordance with the criteria developed from the performance management and reporting framework, as defined in the general notice, for the following selected objectives presented in the annual performance report of the Public Entity for the year ended 31 March 2018:

Strategic Objectives presented in the annual performance report of the Public Entity

OBJECTIVES	PAGES IN THE ANNUAL PERFORMANCE REPORT
SO1: To provide technology development funding and support in high impact areas.	50 – 51
SO2: To provide thought leadership and an enabling environment for technology innovation in collaboration with other role players.	52

We performed procedures to determine whether the reported performance information was properly presented and whether performance was consistent with the approved performance planning documents. We performed further procedures to determine whether the indicators and related targets were measurable and relevant, and assessed the reliability of the reported performance information to determine whether it was valid, accurate and complete.

We did not raise any material findings on the usefulness and reliability of the reported performance information for the following objectives:

- SO1: To provide technology development funding and support in high impact areas.
- SO2: To provide thought leadership and on enabling environment for technology innovation collaboration with other role players.[30]

REPORT ON THE AUDIT OF COMPLIANCE WITH LEGISLATION

INTRODUCTION AND SCOPE

In accordance with the PAA and the general notice issued in terms thereof, we have a responsibility to report material findings on the compliance of the Public Entity with specific matters in key legislation. We performed procedures to identify findings but not to gather evidence to express assurance.

We did not raise material findings on compliance with the specific matters in key legislation set out in the general notice issued in terms of the PAA.

OTHER INFORMATION

The accounting authority is responsible for the other information. The other information comprises the information included in the annual report, which includes the directors' report, the audit committee's report and the company secretary's certificate as required by the Companies Act of South Africa, 2008 (Act No. 71 of 2008). The other information does not include the consolidated and separate financial statements, the auditor's report and those selected objectives presented in the annual performance report that have been specifically reported in this auditor's report.

Our opinion on the financial statements and findings on the reported performance information and compliance with legislation do not cover the other information and we do not express an audit opinion or any form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the consolidated and separate financial statements and the selected objectives presented in the annual performance report, or our knowledge obtained in the audit, or otherwise appears to be materially misstated.

We did not receive the other information prior to the date of this auditor's report. After we receive and read this information, and if we conclude that there is a material misstatement, we are required to communicate the matter to those charged with governance and request that the other information be corrected. If the other information is not corrected, we may have to retract this auditor's report and re-issue an amended report as appropriate. However, if it is corrected this will not be necessary.

INTERNAL CONTROL DEFICIENCIES

We considered internal control relevant to our audit of the consolidated and separate financial statements, reported performance information and compliance with applicable legislation; however, our objective was not to express any form of assurance on it. We did not identify any significant deficiencies in internal control.

AUDITOR TENURE

In terms of the IRBA rule published in Government Gazette Number 39475 dated 4 December 2015, we report that Ngubane & Co. (Jhb) Inc. has been the auditor of Technology Innovation Agency for 4 years.

Ngubane & Co

Ngubane & Co. (JHB) Incorporated
Chartered Accountants (SA)
Director: Nqabisa Ravele
Registered Auditor
31 May 2018

30 TIA note: SO 1 and SO 2 make up the bulk of TIA's APP KPIs.

STATEMENT OF FINANCIAL POSITION

AS AT 31 MARCH 2018

		ECONOMIC ENTITY		CONTROLLING ENTITY	
	NOTES	2018 R'000	2017 R'000	2018 R'000	2017 R'000
Assets					
Current Assets					
Trade and other receivables	2	1,503	5,886	1,503	3,417
Cash and cash equivalents	3	128,926	70,198	126,664	64,567
Loans and receivables	8	1,389	1,577	1,389	1,577
Prepayments		2,810	3,578	2,810	3,578
		134,628	**81,239**	**132,366**	**73,139**
Non-Current Assets					
Property and equipment	4	10,960	13,557	10,960	12,470
Intangible assets	5	3,173	3,459	3,173	3,422
Investments in controlled entities	6	-	-	-	-
Investments in associates	7	-	5,605	-	3,013
Loans and receivables	8	4,345	3,452	4,345	3,452
Other financial assets	9	26,300	26,300	26,300	26,300
		44,778	**52,373**	**44,778**	**48,657**
Total Assets		**179,406**	**133,612**	**177,144**	**121,796**
Liabilities					
Current Liabilities					
Finance lease obligation	10	134	61	134	61
Trade and other payables	11	26,070	32,056	25,323	28,891
Operating lease liability		501	514	501	496
		26,705	**32,631**	**25,958**	**29,448**
Non-Current Liabilities					
Loans from shareholders	12	-	2,762	-	-
Committed conditional grants and receipts	13	88,272	54,443	88,272	54,443
		88,272	**57,205**	**88,272**	**54,443**
Total Liabilities		**114,977**	**89,836**	**114,230**	**83,891**
Net Assets		**64,429**	**43,776**	**62,914**	**37,905**
Net assets attributable to owners of controlling entity					
Reserves					
Foreign currency translation reserve		-	(132)	-	-
Accumulated surplus		64,534	52,700	62,914	37,905
		64,534	**52,568**	**62,914**	**37,905**
Non-controlling interest		(105)	(8,792)	-	-
Total Net Assets		**64,429**	**43,776**	**62,914**	**37,905**

STATEMENT OF FINANCIAL PERFORMANCE

FOR THE YEAR ENDED 31 MARCH 2018

		ECONOMIC ENTITY		CONTROLLING ENTITY	
	NOTES	2018 R'000	2017 R'000	2018 R'000	2017 R'000
Revenue					
Revenue from non-exchange transactions	14	466,123	465,777	466,123	465,777
Other income	15	7,231	15,566	7,231	10,834
Interest received	16	12,144	15,955	12,072	15,591
Total revenue		**485,498**	**497,298**	**485,426**	**492,202**
Expenditure					
Employee related costs	17	(98,717)	(93,356)	(98,717)	(88,674)
Project funding expenditure	18	(309,123)	(450,476)	(309,123)	(450,891)
Depreciation and amortisation		(5,646)	(3,630)	(5,646)	(3,324)
Lease rentals on operating lease		(9,194)	(9,432)	(9,194)	(8,905)
Impairment	19	(1,223)	(14,264)	(1,223)	(14,249)
Repairs and maintenance		(325)	(403)	(325)	(391)
Other operating expenses	20	(39,761)	(34,515)	(39,825)	(32,964)
Total expenditure		**(463,989)**	**(606,076)**	**(464,053)**	**(599,398)**
Operating deficit		**21,509**	**(108,778)**	**21,373**	**(107,196)**
(Loss)/profit on sale of investment		(9,717)	253	3,683	253
Loss on foreign exchange		(47)	(17)	(47)	(17)
Surplus/(deficit) from equity accounted investments		130	(113)	-	-
		(9,634)	**123**	**3,636**	**236**
Surplus/(deficit) for the year		**11,875**	**(108,655)**	**25,009**	**(106,960)**
Attributable to:					
Owners of the controlling entity		**11,834**	**(107,948)**	**25,009**	**(106,960)**
Non-controlling interest		**41**	**(707)**	**-**	**-**
		11,875	(108,655)	25,009	(106,960)

STATEMENT OF CHANGES IN NET ASSETS

FOR THE YEAR ENDED 31 MARCH 2018

ECONOMIC ENTITY	FOREIGN CURRENCY TRANSLATION RESERVE R'000	ACCUMULATED SURPLUS R'000	TOTAL ATTRIBUTABLE TO OWNERS OF THE ECONOMIC ENTITY / CONTROLLING ENTITY R'000	NON-CONTROLLING INTEREST R'000	TOTAL NET ASSETS R'000
Balance at 01 April 2016	**(469)**	**160,648**	**160,179**	**(8,085)**	**152,094**
Changes in net assets					
Currency translation differences	337	-	337	-	337
Deficit for the year as previously reported	-	(107,948)	(107,948)	(707)	(108,655)
Total recognised income and expenses for the year	337	(107,948)	(107,611)	(707)	(108,318)
Balance at 01 April 2017	**(132)**	**52,700**	**52,568**	**(8,792)**	**43,776**
Sale of investment	-	-	-	8,646	8,646
Currency translation differences	132	-	132	-	132
Deficit for the year	-	11,834	11,834	41	11,875
Balance at 31 March 2018	**-**	**64,534**	**64,534**	**(105)**	**64,429**

CONTROLLING ENTITY					
Balance at 01 April 2016	**-**	**144,865**	**144,865**	**-**	**144,865**
Changes in net assets					
Deficit for the year as previously reported	-	(106,960)	(106,960)	-	(106,960)
Balance at 01 April 2017	**-**	**37,905**	**37,905**	**-**	**37,905**
Deficit for the year	-	25,009	25,009	-	25,009
Balance at 31 March 2018	**-**	**62,914**	**62,914**	**-**	**62,914**

CASH FLOW STATEMENT

AS AT 31 MARCH 2018

	NOTES	ECONOMIC ENTITY 2018 R'000	ECONOMIC ENTITY 2017 R'000	CONTROLLING ENTITY 2018 R'000	CONTROLLING ENTITY 2017 R'000
Cash flows from operating activities					
Receipts					
Grants		466,123	465,777	466,123	465,777
Interest income		10,364	15,955	5,451	11,087
Other receipts		2,755	24,323	14,494	24,684
		479,242	**506,055**	**486,068**	**501,548**
Payments					
Employee costs		(98,717)	(93,356)	(98,717)	(88,674)
Project funding expenses		(309,123)	(450,476)	(309,123)	(450,891)
Other payments		(49,622)	(33,816)	(55,841)	(33,267)
		(457,462)	**(577,648)**	**(463,681)**	**(572,832)**
Net cash flows used in operating activities	22	**21,780**	**(71,593)**	**22,387**	**(71,284)**
Cash flows from investing activities					
Purchase of property and equipment	4	(5,099)	(6,686)	(5,099)	(3,986)
Disposal of property and equipment	4	367	87	367	251
Purchase of intangible assets		(1,807)	(3,065)	(1,807)	(3,065)
Repayment of loans received	8	5,734	961	5,734	961
Loans granted	8	-	(1,000)	-	(1,000)
Proceeds on sale of investment	6&7	6,686	-	6,686	-
Net cash flows used in investing activities		**5,881**	**(9,703)**	**5,881**	**(6,839)**
Cash flows from financing activities					
Conditional grants received		92,451	57,201	92,451	57,201
Conditional grants paid		(58,622)	(46,844)	(58,622)	(46,844)
Movement in shareholders loan		(2,762)	-	-	-
Net cash flows from financing activities		**31,067**	**10,357**	**33,829**	**10,357**
Net decrease in cash and cash equivalents		**58,728**	**(70,939)**	**62,097**	**(67,766)**
Cash and cash equivalents at the beginning of the year		70,198	141,137	64,567	132,333
Cash and cash equivalents at the end of the year	3	**128,926**	**70,198**	**126,664**	**64,567**

STATEMENT OF COMPARISON OF BUDGET AND ACTUAL AMOUNTS

FOR THE YEAR ENDED 31 MARCH 2018

CONTROLLING ENTITY	APPROVED BUDGET R'000	ADJUSTMENTS R'000	FINAL BUDGET R'000	ACTUAL AMOUNTS ON COMPARABLE BASIS R'000	DIFFERENCE BETWEEN FINAL BUDGET AND ACTUAL R'000	REFERENCE
STATEMENT OF FINANCIAL PERFORMANCE						
Revenue						
DST allocation	396,732	-	396,732	396,732	-	
Other income	141,789	(97,158)	44,631	76,622	31,991	31.1
Interest received	10,000	-	10,000	12,072	2,072	
Total revenue	**548,521**	**(97,158)**	**451,363**	**485,426**	**34,063**	
Expenditure						
Employee related costs	(104,899)	7,000	(97,899)	(98,717)	(818)	
Project funding expenditure	(381,670)	83,658	(298,012)	(309,123)	(11,111)	31.2
Other operating expenses	(61,952)	6,500	(55,452)	(56,213)	(761)	
Total expenditure	**(548,521)**	**97,158**	**(451,363)**	**(464,053)**	**(12,690)**	
Operating surplus	**-**	**-**	**-**	**21,373**	**21,373**	
Gain on disposal of assets and liabilities	-	-	-	3,683	3,683	
Loss on foreign exchange	-	-	-	(47)	(47)	
Actual Amount on Comparable Basis as Presented in the Budget and Actual Comparative Statement	**-**	**-**	**-**	**25,009**	**25,009**	

ACCOUNTING POLICIES

FOR THE YEAR ENDED 31 MARCH 2018

1. PRESENTATION OF FINANCIAL STATEMENTS

The financial statements have been prepared in accordance with the Standards of Generally Recognised Accounting Practice (GRAP), issued by the Accounting Standards Board in accordance with Section 91(1) of the Public Finance Management Act (Act No. 1 of 1999).

These financial statements have been prepared on an accrual basis of accounting and are in accordance with historical cost convention as the basis of measurement, unless specified otherwise. They are presented in South African Rand. Amounts are rounded to the nearest thousand.

These accounting policies are consistent with the previous period.

1.1 CONSOLIDATION BASIS OF CONSOLIDATION

Consolidated financial statements are the financial statements of the economic entity presented as those of a single entity.

The consolidated financial statements incorporate the financial statements of the controlling entity and all controlled entities, including special purpose entities, which are controlled by the controlling entity.

Consolidated financial statements are prepared using uniform accounting policies for like transactions and other events in similar circumstances.

Control exists when the controlling entity has the power to govern the financial and operating policies of another entity so as to obtain benefits from its activities.

The revenue and expenses of a controlled entity are included in the consolidated financial statements from the transfer date or acquisition date, as defined in the Standards of GRAP on Transfer of functions between entities under common control or Transfer of functions between entities not under common control. The revenue and expenses of the controlled entity are based on the values of the assets and liabilities recognised in the controlling entity's financial statements at the acquisition date.

The financial statements of the controlling entity and its controlled entities used in the preparation of the consolidated financial statements are prepared as of the same date.

When the end of the reporting date of the controlling entity is different from that of a controlled entity, the controlled entity prepares, for consolidation purposes, additional financial statements as of the same date as the financial statements of the controlling entity unless it is impracticable to do so. When the financial statements of a controlled entity used in the preparation of consolidated financial statements are prepared as of a date different from that of the controlling entity, adjustments are made for the effects of significant transactions or events that occur between that date and the date of the controlling entity's financial statements. In any case, the difference between the end of the reporting

1.1 CONSOLIDATION BASIS OF CONSOLIDATION (CONTINUED)

date of the controlled entity and that of the controlling entity is no more than three months. The length of the reporting periods and any difference between the ends of the reporting dates are the same from period to period.

Adjustments are made when necessary to the financial statements of the controlled entities to bring their accounting policies in line with those of the controlling entity.

All intra-entity transactions, balances, revenues and expenses are eliminated in full on consolidation.

Non-controlling interests in the net assets of the economic entity are identified and recognised separately from the controlling entity's interest therein, and are recognised within net assets.

Changes in a controlling entity's ownership interests in a controlled entity that do not result in a loss of control, are accounted for as transactions that affect net assets.

INVESTMENT IN ASSOCIATES

An associate is an entity, including an unincorporated entity such as a partnership, over which the investor has significant influence and that is neither a controlled entity nor an interest in a joint venture. Significant influence is the power to participate in the financial and operating policy decisions of an activity but is not control or joint control over those policies.

An investment in associates is accounted for using the equity method. Under the equity method, investments in associates are carried in the consolidated statement of financial position at cost adjusted for post acquisition changes in the economic entity's share of net assets of the associate, less any impairment losses.

Equity method is a method of accounting whereby the investment is initially recognised at cost and adjusted thereafter for the post-acquisition change in the economic entity's share of net assets of the investee. The surplus or deficit of the economic entity includes the economic entity's share of the surplus or deficit of the investee.

The economic entity's share of the surplus or deficit of the investee is recognised in surplus or deficit. Distributions received from an investee reduce the carrying amount of the investment.

The most recent available financial statements of the associate are used by the economic entity in applying the equity method. When the reporting dates of the economic entity and the associate are different, the associate prepares, for the use of the economic entity, financial statements as of the same date as the financial statements of the economic entity unless it is impractical to do so.

When the financial statements of an associate used in applying the equity method are prepared as of a different date from that of the economic entity, adjustments are made for the effects of significant transactions or events that occur between that date and the date of the economic entity's financial statements. In any case, the difference between the end of the reporting dates of the associate and that of the economic entity is no more than three months. The length of the reporting dates and any difference between the ends of the reporting dates is the same from period to period.

The economic entity's financial statements are prepared using uniform accounting policies for like transactions and events in similar circumstances.

Deficits in an associate in excess of the economic entity's interest in that associate are recognised only to the extent that the economic entity has incurred a legal or constructive obligation to make payments on behalf of the associate. If the associate subsequently reports surpluses, the economic entity resumes recognising its share of those surpluses only after its share of the surpluses equals the share of deficits not recognised.

1.1 CONSOLIDATION BASIS OF CONSOLIDATION (CONTINUED)

Surpluses and deficits on transactions between the economic entity and an associate are eliminated to the extent of the economic entity's interest therein.

The controlling entity discontinues the use of the equity method from the date that it ceases to have significant influence over an associate and account for the investment in accordance with the Standards of GRAP on Financial instruments from that date, unless the associate becomes a controlled entity or a joint venture, in which case it is accounted for as such. The carrying amount of the investment at the date that it ceases to be an associate is regarded as the fair value on initial recognition as a financial asset in accordance with the Standards of GRAP on Financial Instruments.

1.2 SIGNIFICANT JUDGEMENTS AND SOURCES OF ESTIMATION UNCERTAINTY

In preparing the financial statements in conformity with GRAP, Management is required to make judgements, estimates and assumptions that affect the amounts represented in the financial statements and related disclosures. Use of available information and the application of judgement is inherent in the formation of estimates. Actual results in the future could differ from these estimates which may be material to the financial statements. These estimates and underlying assumptions are reviewed by management on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period, or in the period of the revision and future periods if the revision effects both current and future periods. Significant judgements include:

LOANS AND RECEIVABLES

The economic and controlling entity assesses its loans and receivables for impairment at the end of each reporting period. In determining whether an impairment loss should be recorded in surplus or deficit, the economic entity makes judgements as to whether there is observable data indicating a measurable decrease in the estimated future cash flows from a financial asset.

The impairment for loans and receivables is calculated on an individual basis, based on historical losses, financial position of the entity, repayment terms and the commercial viability of the business.

IMPAIRMENT TESTING (NON-FINANCIAL ASSETS)

The recoverable amounts of individual assets have been determined based on the higher of value-in-use calculations and fair values less costs to sell. These calculations require the use of estimates and assumptions. It is reasonably possible that the assumptions used may change which may then impact our estimations and may then require a material adjustment to the carrying value of tangible assets.

The economic and controlling entity review and test the carrying value of assets when events or changes in circumstances suggest that the carrying amount may not be recoverable. If there are indications that impairment may have occurred, estimates are prepared of expected future cash flows for each asset. Expected future cash flows used to determine the value in use of other assets are inherently uncertain and could materially change over time.

1.3 PROPERTY AND EQUIPMENT (CONTINUED)

ALLOWANCE FOR DOUBTFUL DEBTS

On debtors an impairment loss is recognised in surplus and deficit when there is objective evidence that it is impaired. The impairment is measured as the difference between the debtors carrying amount and the present value of estimated future cash flows discounted at the effective interest rate, computed at initial recognition.

1.3 PROPERTY AND EQUIPMENT

Property and equipment are tangible non-current assets (including infrastructure assets) that are held for use in the production or supply of goods or services, rental to others, or for administrative purposes, and are expected to be used during more than one period.

The cost of an item of property and equipment is recognised as an asset when:

- it is probable that future economic benefits or service potential associated with the item will flow to the economic entity; and
- the cost of the item can be measured reliably.

Property and equipment are initially measured at cost.

The cost of an item of property and equipment is the purchase price and other costs attributable to bring the asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Trade discounts and rebates are deducted in arriving at the cost.

Where an asset is acquired through a non-exchange transaction, its cost is its fair value as at date of acquisition.

Where an item of property and equipment is acquired in exchange for a non-monetary asset or monetary assets, or a combination of monetary and non-monetary assets, the asset acquired is initially measured at fair value (the cost). If the acquired item's fair value was not determinable, it's deemed cost is the carrying amount of the asset(s) given up.

When significant components of an item of property and equipment have different useful lives, they are accounted for as separate items (major components) of property and equipment.

Costs include: costs incurred initially to acquire or construct an item of property and equipment; and costs incurred subsequently to add to, replace part of, or service it. If a replacement cost is recognised in the carrying amount of an item of property and equipment, the carrying amount of the replaced part is derecognised.

Recognition of costs in the carrying amount of an item of property and equipment ceases when the item is in the location and condition necessary for it to be capable of operating in the manner intended by management.

Property and equipment are carried at cost less accumulated depreciation and any impairment losses.

Property and equipment are depreciated on the straight line basis over their expected useful lives to their estimated residual value.

The depreciable amount of an asset is allocated on a systematic basis over its useful life.

Each part of an item of property and equipment with a cost that is significant in relation to the total cost of the item is depreciated separately.

1.3 PROPERTY AND EQUIPMENT (CONTINUED)

The depreciation method used reflects the pattern in which the asset's future economic benefits or service potential are expected to be consumed by the economic entity. The depreciation method applied to an asset is reviewed at least at each reporting date and, if there has been a significant change in the expected pattern of consumption of the future economic benefits or service potential embodied in the asset, the method is changed to reflect the changed pattern. Such a change is accounted for as a change in an accounting estimate.

The economic entity assesses at each reporting date whether there is any indication that the economic entity expectations about the residual value and the useful life of an asset have changed since the preceding reporting date. If any such indication exists, the economic entity revises the expected useful life and/or residual value accordingly. The change is accounted for as a change in an accounting estimate.

The depreciation charge for each period is recognised in surplus or deficit unless it is included in the carrying amount of another asset.

Items of property and equipment are derecognised when the asset is disposed of or when there are no further economic benefits or service potential expected from the use of the asset.

The gain or loss arising from the derecognition of an item of property and equipment is included in surplus or deficit when the item is derecognised. The gain or loss arising from the derecognition of an item of property and equipment is determined as the difference between the net disposal proceeds, if any, and the carrying amount of the item.

The economic entity separately discloses expenditure to repair and maintain property and equipment on the face of the statement of financial performance.

1.4 INTANGIBLE ASSETS

An asset is identifiable if it either:

- is separable, i.e. is capable of being separated or divided from an entity and sold, transferred, licensed, rented or exchanged, either individually or together with a related contract, identifiable assets or liability, regardless of whether the entity intends to do so; or
- arises from binding arrangements (including rights from contracts), regardless of whether those rights are transferable or separable from the economic entity or from other rights and obligations.

A binding arrangement describes an arrangement that confers similar rights and obligations on the parties to it as if it were in the form of a contract.

An intangible asset is recognised when:

- it is probable that the expected future economic benefits or service potential that are attributable to the asset will flow to the economic entity; and
- the cost or fair value of the asset can be measured reliably.

The economic entity assesses the probability of expected future economic benefits or service potential using reasonable and supportable assumptions that represent management's best estimate of the set of economic conditions that will exist over the useful life of the asset.

1.4 INTANGIBLE ASSETS (CONTINUED)

Where an intangible asset is acquired through a non-exchange transaction, its initial cost at the date of acquisition is measured at its fair value as at that date.

Expenditure on research (or on the research phase of an internal project) is recognised as an expense when it is incurred.

Intangible assets are carried at cost less any accumulated amortisation and any impairment losses.

An intangible asset is regarded as having an indefinite useful life when, based on all relevant factors, there is no foreseeable limit to the period over which the asset is expected to generate net cash inflows or service potential. Amortisation is not provided for these intangible assets, but they are tested for impairment annually and whenever there is an indication that the asset may be impaired. For all other intangible assets amortisation is provided on a straight line basis over their useful life.

The amortisation period and the amortisation method for intangible assets are reviewed at each reporting date.

Amortisation is provided to write down the intangible assets, on a straight line basis, to their residual values as follows:

ITEM	USEFUL LIFE
Computer software	2 - 3 years

1.5 INVESTMENTS IN CONTROLLED ENTITIES CONTROLLING ENTITY FINANCIAL STATEMENTS

In the entity's separate financial statements, investments in controlled entities are carried at cost. The entity applies the same accounting method for each category of investment.

The entity recognises a dividend or similar distribution in surplus or deficit in its separate financial statements when its right to receive the dividend or similar distribution is established.

Investments in controlled entities that are accounted for in accordance with the accounting policy on Financial instruments in the consolidated financial statements, are accounted for in the same way in the controlling entity's separate financial statements.

1.6 INVESTMENTS IN ASSOCIATES CONTROLLING ENTITY FINANCIAL STATEMENTS

An investment in an associate is carried at cost.

The entity applies the same accounting method for each category of investment.

The entity recognises a dividend or similar distribution in surplus or deficit in its separate financial statements when its right to receive the dividend or similar distribution is established.

1.7 FINANCIAL INSTRUMENTS CLASSIFICATION

The entity has the following types of financial assets (classes and category) as reflected on the face of the statement of financial position or in the notes thereto:

CLASS	CATEGORY
Investment in controlled entities	Financial assets at cost
Investment in associates	Financial assets at cost
Other financial assets	Financial assets at cost
Cash and cash equivalents	Financial assets at amortised cost
Loans and receivables	Financial assets at amortised cost

The entity has the following types of financial liabilities (classes and category) as reflected on the face of the statement of financial position or in the notes thereto:

CLASS	CATEGORY
Trade and other payables	Financial liability measured at amortised cost
Finance lease obligation	Financial liability measured at amortised cost

INITIAL RECOGNITION

The entity recognises a financial asset or a financial liability in its statement of financial position when the entity becomes a party to the contractual provisions of the instrument.

The entity recognises financial assets using trade date accounting.

INITIAL MEASUREMENT OF FINANCIAL ASSETS AND FINANCIAL LIABILITIES

The entity measures a financial asset and financial liability initially at its fair value plus transaction costs that are directly attributable to the acquisition or issue of the financial asset or financial liability.

The entity first assesses whether the substance of a concessionary loan is in fact a loan. On initial recognition, the entity analyses a concessionary loan into its component parts and accounts for each component separately. The entity accounts for that part of a concessionary loan that is a social benefit in accordance with the Framework for the Preparation and Presentation of Financial Statements, where it is the issuer of the loan.

SUBSEQUENT MEASUREMENT OF FINANCIAL ASSETS AND FINANCIAL LIABILITIES

The entity measures all financial assets and financial liabilities after initial recognition using the following categories:

- Financial instruments at amortised cost;
- Financial instruments at cost.

All financial assets are subject to an impairment review.

1.7 FINANCIAL INSTRUMENTS CLASSIFICATION (CONTINUED)

RECLASSIFICATION

The entity does not reclassify a financial instrument while it is issued or held unless it is:

- a combined instrument that is required to be measured at fair value; or
- an investment in a residual interest that meets the requirements for reclassification.

GAINS AND LOSSES

For financial assets and financial liabilities measured at amortised cost or cost, a gain or loss is recognised in surplus or deficit when the financial asset or financial liability is derecognised or impaired, or through the amortisation process.

IMPAIRMENT AND UNCOLLECTIBILITY OF FINANCIAL ASSETS

The entity assesses at the end of each reporting period whether there is any objective evidence that a financial asset or group of financial assets is impaired. The impairment is calculated on an individual basis, based on historical losses, financial position of the entity, repayment terms and the commercial viability of the business.

Financial assets measured at amortised cost:

If there is objective evidence that an impairment loss on financial assets measured at amortised cost has been incurred, the amount of the loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows (excluding future credit losses that have not been incurred) discounted at the financial asset's original effective interest rate. The carrying amount of the asset is reduced through the use of an allowance account. The amount of the loss is recognised in surplus or deficit.

If, in a subsequent period, the amount of the impairment loss decreases and the decrease can be related objectively to an event occurring after the impairment was recognised, the previously recognised impairment loss is reversed by adjusting an allowance account. The reversal does not result in a carrying amount of the financial asset that exceeds what the amortised cost would have been had the impairment not been recognised at the date the impairment is reversed. The amount of the reversal is recognised in surplus or deficit.

Financial assets measured at cost:

If there is objective evidence that an impairment loss has been incurred on an investment in a residual interest that is not measured at fair value because its fair value cannot be measured reliably, the amount of the impairment loss is measured as the difference between the carrying amount of the financial asset and the present value of estimated future cash flows discounted at the current market rate of return for a similar financial asset. Such impairment losses are not reversed.

DERECOGNITION

Financial assets

The entity derecognises financial assets using trade date accounting. The entity derecognises a financial asset only when:

- the contractual rights to the cash flows from the financial asset expire, are settled or waived; or
- the entity transfers, to another party, substantially all of the risks and rewards of ownership of the financial asset.

1.7 FINANCIAL INSTRUMENTS CLASSIFICATION (CONTINUED)

On derecognition of a financial asset in its entirety, the difference between the carrying amount and the sum of the consideration received is recognised in surplus or deficit.

If a transfer does not result in derecognition because the entity has retained substantially all the risks and rewards of ownership of the transferred asset, the entity continues to recognise the transferred asset in its entirety and recognise a financial liability for the consideration received. In subsequent periods, the entity recognises any revenue on the transferred asset and any expense incurred on the financial liability. Neither the asset, and the associated liability nor the revenue, and the associated expenses are offset.

Financial liabilities

The entity derecognises a financial liability (or a part of a financial liability) from its statement of financial position when it is extinguished — i.e. when the obligation specified in the contract is discharged, cancelled, expires or waived.

The difference between the carrying amount of a financial liability (or part of a financial liability) extinguished or transferred to another party and the consideration paid, including any non-cash assets transferred or liabilities assum is recognised in surplus or deficit. Any liabilities that are waived, forgiven or assumed by another entity by way of a non-exchange transaction are accounted for in accordance with the Standards of GRAP on Revenue from Non-exchange Transactions (Taxes and Transfers).

Presentation

Interest relating to a financial instrument or a component that is a financial liability is recognised as revenue or expense in surplus or deficit.

Dividends or similar distributions relating to a financial instrument or components that are a financial liability are recognised as revenue or expense in surplus or deficit.

Losses and gains relating to a financial instrument or components that are a financial liability are recognised as revenue or expense in surplus or deficit.

Distributions to holders of residual interests are recognised by the entity directly in net assets. Transaction costs incurred on residual interests are accounted for as a deduction from net assets.

A financial asset and a financial liability are only offset and the net amount presented in the statement of financial position when the entity currently has a legally enforceable right to set off the recognised amounts and intends either to settle on a net basis, or to realise the asset and settle the liability simultaneously.

In accounting for a transfer of a financial asset that does not qualify for derecognition, the entity does not offset the transferred asset and the associated liability.

1.8 LEASES

A lease is classified as a finance lease if it transfers substantially all the risks and rewards incidental to ownership. A lease is classified as an operating lease if it does not transfer substantially all the risks and rewards incidental to ownership.

When a lease includes both land and building elements, the entity assesses the classification of each element separately.

1.7 FINANCIAL INSTRUMENTS CLASSIFICATION (CONTINUED)

FINANCE LEASES – LESSEE

Finance leases are recognised as assets and liabilities in the statement of financial position at amounts equal to the fair value of the leased property or, if lower, the present value of the minimum lease payments.

The discount rate used in calculating the present value of the minimum lease payments is the interest rate implicit in the lease.

Minimum lease payments are apportioned between the finance charge and reduction of the outstanding liability. The finance charge is allocated to each period during the lease term so as to produce a constant periodic rate on the remaining balance of the liability.

OPERATING LEASES – LESSOR

Operating lease revenue is recognised as revenue on a straight-line basis over the lease term.

Initial direct costs incurred in negotiating and arranging operating leases are added to the carrying amount of the leased asset and recognised as an expense over the lease term on the same basis as the lease revenue.

Income for leases is disclosed under revenue in statement of financial performance.

OPERATING LEASES – LESSEE

Operating lease payments are recognised as an expense on a straight-line basis over the lease term. The difference between the amounts recognised as an expense and the contractual payments are recognised in the statement of financial position as an operating lease asset or liability.

1.9 IMPAIRMENT OF CASH-GENERATING ASSETS

Cash-generating assets are assets managed with the objective of generating a commercial return. An asset generates a commercial return when it is deployed in a manner consistent with that adopted by a profit-oriented entity.

Impairment is a loss in the future economic benefits or service potential of an asset, over and above the systematic recognition of the loss of the asset's future economic benefits or service potential through depreciation (amortisation).

Carrying amount is the amount at which an asset is recognised in the statement of financial position after deducting any accumulated depreciation and accumulated impairment losses thereon.

A cash-generating unit is the smallest identifiable group of assets managed with the objective of generating a commercial return that generates cash inflows from continuing use that are largely independent of the cash inflows from other assets or groups of assets.

Costs of disposal are incremental costs directly attributable to the disposal of an asset, excluding finance costs and income tax expense.

Depreciation (Amortisation) is the systematic allocation of the depreciable amount of an asset over its useful life.

Fair value less costs to sell is the amount obtainable from the sale of an asset in an arm's length transaction between knowledgeable, willing parties, less the costs of disposal.

1.9 IMPAIRMENT OF CASH-GENERATING ASSETS (CONTINUED)

Recoverable amount of an asset or a cash-generating unit is the higher of its fair value less costs to sell and its value in use.

Useful life is either:

(a) the period of time over which an asset is expected to be used by the economic entity; or

(b) the number of production or similar units expected to be obtained from the asset by the economic entity.

Criteria developed by the economic entity to distinguish cash-generating assets from non-cash-generating assets are as follow:

VALUE IN USE

Value in use of a cash-generating asset is the present value of the estimated future cash flows expected to be derived from the continuing use of an asset and from its disposal at the end of its useful life.

When estimating the value in use of an asset, the economic entity estimates the future cash inflows and outflows to be derived from continuing use of the asset and from its ultimate disposal and the economic entity applies the appropriate discount rate to those future cash flows.

1.10 BUDGET INFORMATION

The economic entity is typically subject to budgetary limits in the form of appropriations or budget authorisations which is given effect through authorising appropriation via a vote.

General purpose financial reporting by the economic entity shall provide information on whether resources were obtained and used in accordance with the legally adopted budget. The standard applies to entities that are required or elect to make publicly available their approved budgets, in the economic entity's case this principle only applies to the budget of the controlled entity.

The approved budget is prepared on an accrual basis and presented by economic classification. The approved budget covers the financial period from 1 April 2017 to 31 March 2018.

The financial statements and the budget are on the same basis of accounting therefore a comparison with the budgeted amounts for the reporting period have been included in the Statement of comparison of budget and actual amounts.

1.11 RELATED PARTIES

The economic entity operates in an economic sector currently dominated by entities directly or indirectly owned by the South African Government. As a consequence of the constitutional independence of the three spheres of government in South Africa, only entities within the national sphere of government are considered to be related parties.

Management is those persons responsible for planning, directing and controlling the activities of the economic entity, including those charged with the governance of the economic entity in accordance with legislation, in instances where they are required to perform such functions.

1.12 SHARE CAPITAL / CONTRIBUTED CAPITAL

An equity instrument is any contract that evidences a residual interest in the assets of an economic entity after deducting all of its liabilities.

Ordinary shares are classified as equity. Mandatorily redeemable preference shares are classified as liabilities.

Incremental costs directly attributable to the issue of new shares or options are shown in equity as a deduction, net of tax, from the proceeds.

1.13 EMPLOYEE BENEFITS

Employee benefits are all forms of consideration given by an entity in exchange for services rendered by employees. Termination benefits are employee benefits payable as a result of either:

- an entity's decision to terminate an employee's employment before the normal retirement date; or
- an employee's decision to accept voluntary redundancy in exchange for those benefits.

SHORT-TERM EMPLOYEE BENEFITS

Short-term employee benefits are employee benefits (other than termination benefits) that are due to be settled within twelve months after the end of the period in which the employees render the related service.

Short-term employee benefits include items such as:

- wages, salaries;
- short-term compensated absences (such as paid annual leave and paid sick leave) where the compensation for the absences is due to be settled within twelve months after the end of the reporting period in which the employees render the related employee service;
- bonus, incentive and performance related payments payable within twelve months after the end of the reporting period in which the employees render the related service; and
- non-monetary benefits (for example, medical care, and free or subsidised goods or services such as housing, cars and cellphones) for current employees.

The expected cost of compensated absences is recognised as an expense as the employees render services that increase their entitlement or, in the case of non-accumulating absences, when the absence occurs. The entity measures the expected cost of accumulating compensated absences as the additional amount that the entity expects to pay as a result of the unused entitlement that has accumulated at the reporting date.

The entity recognises the expected cost of bonus, incentive and performance related payments as accruals when the entity has a present legal or constructive obligation to make such payments as a result of past events and a reliable estimate of the obligation can be made. A present obligation exists when the entity has no realistic alternative but to make the payments.

POST-EMPLOYMENT BENEFITS: DEFINED CONTRIBUTION PLANS

Defined contribution plans are post-employment benefit plans under which an entity pays fixed contributions into a separate entity (a fund) and will have no legal or constructive obligation to pay further contributions if the fund does not hold sufficient assets to pay all employee benefits relating to employee service in the current and prior periods. The entity contributes to a pension fund under this definition.

1.14 CONTINGENCIES

Contingent assets and contingent liabilities are not recognised in the statement of financial position, but are disclosed as a note to the financial statements.

1.15 REVENUE FROM EXCHANGE TRANSACTIONS

Revenue is the gross inflow of economic benefits or service potential during the reporting period when those inflows result in an increase in net assets, other than increases relating to contributions from owners.

Exchange transactions are transactions in which one entity receives assets or services, or has liabilities extinguished, and directly gives approximately equal value (primarily in the form of cash, goods, services or use of assets) to another entity in exchange.

Fair value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction.

Revenue from exchange transactions include interest, royalties and dividends earned as well as profit on sale of assets.

MEASUREMENT

Revenue is measured at the fair value of the consideration received or receivable, net of trade discounts and volume rebates.

INTEREST, ROYALTIES AND DIVIDENDS

Revenue arising from the use by others of entity assets yielding interest, royalties and dividends is recognised when:

- It is probable that the economic benefits or service potential associated with the transaction will flow to the entity; and
- The amount of the revenue can be measured reliably.

Interest is recognised, in surplus or deficit, using the effective interest method.

Royalties are recognised in surplus or deficit, as they are earned in accordance with the substance of the relevant agreements.

Dividends, or their equivalents are recognised, in surplus or deficit, when the entity's right to receive payment has been established.

1.16 REVENUE FROM NON-EXCHANGE TRANSACTIONS

Revenue comprises gross inflows of economic benefits or service potential received and receivable by an entity, which represents an increase in net assets, other than increases relating to contributions from owners.

Conditions on transferred assets are stipulations that specify that the future economic benefits or service potential embodied in the asset is required to be consumed by the recipient as specified or future economic benefits or service potential must be returned to the transferor.

1.16 REVENUE FROM NON-EXCHANGE TRANSACTIONS (CONTINUED)

Control of an asset arises when the entity can use or otherwise benefit from the asset in pursuit of its objectives and can exclude or otherwise regulate the access of others to that benefit.

Exchange transactions are transactions in which one entity receives assets or services, or has liabilities extinguished, and directly gives approximately equal value (primarily in the form of cash, goods, services, or use of assets) to another entity in exchange.

Non-exchange transactions are transactions that are not exchange transactions. In a non-exchange transaction, an entity either receives value from another entity without directly giving approximately equal value in exchange, or gives value to another entity without directly receiving approximately equal value in exchange.

Restrictions on transferred assets are stipulations that limit or direct the purposes for which a transferred asset may be used, but do not specify that future economic benefits or service potential is required to be returned to the transferor if not deployed as specified.

Stipulations on transferred assets are terms in laws or regulation, or a binding arrangement, imposed upon the use of a transferred asset by entities external to the reporting entity.

Transfers are inflows of future economic benefits or service potential from non-exchange transactions, other than taxes.

RECOGNITION

An inflow of resources from a non-exchange transaction recognised as an asset is recognised as revenue, except to the extent that a liability is also recognised in respect of the same inflow.

As the entity satisfies a present obligation recognised as a liability in respect of an inflow of resources from a non-exchange transaction recognised as an asset, it reduces the carrying amount of the liability recognised and recognises an amount of revenue equal to that reduction.

MEASUREMENT

Revenue from a non-exchange transaction is measured at the amount of the increase in net assets recognised by the entity.

When, as a result of a non-exchange transaction, the entity recognises an asset, it also recognises revenue equivalent to the amount of the asset measured at its fair value as at the date of acquisition, unless it is also required to recognise a liability. Where a liability is required to be recognised it will be measured as the best estimate of the amount required to settle the obligation at the reporting date, and the amount of the increase in net assets, if any, recognised as revenue. When a liability is subsequently reduced, because the taxable event occurs or a condition is satisfied, the amount of the reduction in the liability is recognised as revenue.

1.17 INVESTMENT INCOME

Investment income is recognised on a time-proportion basis using the effective interest method.

1.18 FINANCE COSTS

Borrowing costs are interest and other expenses incurred by an entity in connection with the borrowing of funds. Borrowing costs are recognised as an expense in the period in which they are incurred.

1.19 IRREGULAR AND FRUITLESS AND WASTEFUL EXPENDITURE

Irregular expenditure means expenditure incurred in contravention of, or not in accordance with, requirements of any applicable legislation, including the PFMA.

Fruitless and wasteful expenditure means expenditure that was made in vain and would have been avoided had reasonable care been exercised.

All irregular and fruitless and wasteful expenditure is charged against the respective class of expenditure in the statement of financial performance in the period in which they are incurred and disclosed in a note in the period in which it is identified.

1.20 SEGMENT INFORMATION

A segment is an activity of an entity:

- that generates economic benefits or service potential (including economic benefits or service potential relating to transactions between activities of the same entity);
- whose results are regularly reviewed by management to make decisions about resources to be allocated to that activity and in assessing its performance; and
- for which separate financial information is available.

Reportable segments are the actual segments which are reported on in the segment report. They are the segments identified above or alternatively an aggregation of two or more of those segments where the aggregation criteria are met.

NOTES TO THE FINANCIAL STATEMENTS

2. TRADE AND OTHER RECEIVABLES	ECONOMIC ENTITY 2018 R'000	ECONOMIC ENTITY 2017 R'000	CONTROLLING ENTITY 2018 R'000	CONTROLLING ENTITY 2017 R'000
Trade receivables	767	4,031	767	2,925
Deposits	322	486	322	364
Other receivables	414	1,369	414	128
	1,503	**5,886**	**1,503**	**3,417**

FAIR VALUE OF TRADE AND OTHER RECEIVABLES

The entity is of the opinion that the carrying value approximates the fair value of trade and other receivables at period end, due to the short term nature of these balances.

TRADE AND OTHER RECEIVABLES PAST DUE BUT NOT IMPAIRED

Trade and other receivables which are less than 3 months past due are not considered to be impaired. The ageing of amounts past due but not impaired is as follows:

3 months past due	75	2,160	75	1,889

TRADE AND OTHER RECEIVABLES IMPAIRED

The amount of the provision for impairment is R 533,168 as of 31 March 2018 (2017: R 322,191).

The ageing of these balances are as follows:

3 to 6 months	-	11	-	11
Over 6 months	322	311	322	311

RECONCILIATION OF PROVISION FOR IMPAIRMENT OF TRADE AND OTHER RECEIVABLES

Opening balance	322	311	322	311
Provision for impairment	224	11	224	11
Amounts written off as uncollectable	(13)	-	(13)	-
	533	**322**	**533**	**322**

The creation and release of the provision for impaired receivables has been included in operating expenses in the statement of financial performance. Amounts charged to the allowance account are generally written off when the recovery of such amounts is improbable.

No collateral is held as security.

3. CASH AND CASH EQUIVALENTS	ECONOMIC ENTITY 2018 R'000	ECONOMIC ENTITY 2017 R'000	CONTROLLING ENTITY 2018 R'000	CONTROLLING ENTITY 2017 R'000
Cash and cash equivalents consist of:				
Cash on hand	19	14	19	14
Bank balances	128,907	70,184	126,645	64,553
	128,926	**70,198**	**126,664**	**64,567**

The entity is of the opinion that the carrying value approximates the fair value of cash and cash equivalents at period end, due to the short term nature of the balances.

4. PROPERTY AND EQUIPMENT

	2018			2017		
ECONOMIC ENTITY	COST R'000	ACCUMULATED DEPRECIATION /IMPAIRMENT R'000	CARRYING VALUE R'000	COST R'000	ACCUMULATED DEPRECIATION /IMPAIRMENT R'000	CARRYING VALUE R'000
Land and buildings	2,700	(1,000)	1,700	4,376	(945)	3,431
Furniture and office equipment	28,165	(21,769)	6,396	29,263	(21,486)	7,777
Motor vehicles	303	(303)	-	303	(303)	-
Leasehold improvements	6,483	(4,226)	2,257	15,300	(14,234)	1,066
Other property and equipment	15	(15)	-	7,374	(7,374)	-
Laboratory equipment	10,311	(9,704)	607	12,410	(11,127)	1,283
Total	**47,977**	**(37,017)**	**10,960**	**69,026**	**(55,469)**	**13,557**
CONTROLLING ENTITY						
Land and buildings	2,700	(1,000)	1,700	2,700	-	2,700
Furniture and office equipment	28,023	(21,627)	6,396	27,949	(20,358)	7,591
Motor vehicles	299	(299)	-	299	(299)	-
Leasehold improvements	6,483	(4,226)	2,257	15,300	(14,234)	1,066
Laboratory equipment	10,311	(9,704)	607	12,161	(11,048)	1,113
Total	**47,816**	**(36,856)**	**10,960**	**58,409**	**(45,939)**	**12,470**

4. PROPERTY AND EQUIPMENT (CONTINUED)

RECONCILIATION OF PROPERTY AND EQUIPMENT - ECONOMIC ENTITY - 2018

	OPENING BALANCE R'000	ADDITIONS R'000	DISPOSALS R'000	OTHER CHANGES, MOVEMENTS R'000	DEPRECIATION R'000	IMPAIRMENT LOSS R'000	CLOSING BALANCE R'000
Land and buildings	3,431	-	-	(731)	-	(1,000)	1,700
Furniture and office equipment	7,777	2,177	(260)	(186)	(3,112)	-	6,396
Leasehold improvements	1,066	2,652	-	-	(1,461)	-	2,257
Laboratory equipment	1,283	270	(107)	(170)	(669)	-	607
	13,557	**5,099**	**(367)**	**(1,087)**	**(5,242)**	**(1,000)**	**10,960**

RECONCILIATION OF PROPERTY AND EQUIPMENT - ECONOMIC ENTITY - 2017

	OPENING BALANCE R'000	ADDITIONS R'000	DISPOSALS R'000	OTHER CHANGES R'000	DEPRECIATION R'000	CLOSING BALANCE R'000
Land and buildings	815	2,700	-	-	(84)	3,431
Furniture and office equipment	8,680	2,357	(156)	-	(3,104)	7,777
Leasehold improvements	29	1,087	-	-	(50)	1,066
Other property, plant and equipment	93	-	-	12	(105)	-
Laboratory equipment	1,491	542	(95)	152	(807)	1,283
	11,108	6,686	(251)	164	(4,150)	13,557

RECONCILIATION OF PROPERTY AND EQUIPMENT - CONTROLLING ENTITY - 2018

	OPENING BALANCE R'000	ADDITIONS R'000	DISPOSALS R'000	OTHER CHANGES R'000	DEPRECIATION R'000	CLOSING BALANCE R'000
Land and buildings	2,700	-	-	-	(1,000)	1,700
Furniture and office equipment	7,591	2,177	(260)	(3,112)	-	6,396
Leasehold improvements	1,066	2,652	-	(1,461)	-	2,257
Laboratory equipment	1,113	270	(107)	(669)	-	607
	12,470	5,099	(367)	(5,242)	(1,000)	10,960

RECONCILIATION OF PROPERTY AND EQUIPMENT - CONTROLLING ENTITY - 2017

	OPENING BALANCE R'000	ADDITIONS R'000	DISPOSALS R'000	DEPRECIATION R'000	CLOSING BALANCE R'000
Land and buildings	2,700	-	-	-	2,700
Furniture and office equipment	8,407	2,357	(156)	(3,017)	7,591
Leasehold improvements	29	1,087	-	(50)	1,066
Laboratory equipment	1,394	542	(95)	(728)	1,113
	12,530	**3,986**	**(251)**	**(3,795)**	**12,470**

4. PROPERTY AND EQUIPMENT (CONTINUED)

PLEDGED AS SECURITY

None of the assets above have been pledged as security or have restrictions on title.

The carrying value of assets included in furniture and office equipment under finance leases: R134,235 (2017: R60,555). (See note 10)

Depreciation related to technology platform programme's is included in project expenditure.

DEPRECIATION RATES

ITEM	DEPRECIATION METHOD	AVERAGE USEFUL LIFE
Buildings	Straight line	20 - 25 years
Furniture and office equipment	Straight line	2 - 6 years
Motor vehicles	Straight line	4 years
Leasehold improvements	Straight line	Shorter of the period of the lease agreement or the useful life
Other property, plant and equipment	Straight line	5 - 10 years
Laboratory equipment	Straight line	6 - 8 years

DETAILS OF PROPERTIES

	ECONOMIC ENTITY		CONTROLLING ENTITY	
Portion 84, Moerasrivier no 233 division George, Eastern Cape	**2018 R'000**	**2017 R'000**	**2018 R'000**	**2017 R'000**
- Purchase price: 20/03/2013	2,700	2,700	2,700	2,700
- Decrease in Valuation 07/04/2017	(1,000)	(192)	(1,000)	(192)
	1,700	**2,508**	**1,700**	**2,508**

5. INTANGIBLE ASSETS

	2018			2017		
ECONOMIC ENTITY	**COST R'000**	**ACCUMULATED DEPRECIATION /IMPAIRMENT R'000**	**CARRYING VALUE R'000**	**COST R'000**	**ACCUMULATED DEPRECIATION /IMPAIRMENT R'000**	**CARRYING VALUE R'000**
Computer software	8,213	(5,040)	3,173	7,190	(3,731)	3,459
CONTROLLING ENTITY						
Computer software	8,182	(5,009)	3,173	6,521	(3,099)	3,422

5. INTANGIBLE ASSETS (CONTINUED)

RECONCILIATION OF INTANGIBLE ASSETS - ECONOMIC ENTITY - 2018

	OPENING BALANCE R'000	ADDITIONS R'000	OTHER CHANGES R'000	AMORTISATION R'000	TOTAL R'000
Computer software	3,459	1,807	(37)	(2,056)	3,173

RECONCILIATION OF INTANGIBLE ASSETS - ECONOMIC ENTITY - 2017

	OPENING BALANCE R'000	ADDITIONS R'000	AMORTISATION R'000	TOTAL R'000
Computer software	861	3,065	(467)	3,459

RECONCILIATION OF INTANGIBLE ASSETS - CONTROLLING ENTITY - 2018

	OPENING BALANCE R'000	ADDITIONS R'000	AMORTISATION R'000	TOTAL R'000
Computer software	3,422	1,807	(2,056)	3,173

RECONCILIATION OF INTANGIBLE ASSETS - CONTROLLING ENTITY - 2017

Computer software	816	3,065	(459)	3,422

RESTRICTED TITLE

None of the above intangible assets have restrictions in title or have been pledged as security.

6. INVESTMENTS IN CONTROLLED ENTITIES

NAME OF COMPANY	REPORTING PERIOD END	% HOLDING 2018 R'000	% HOLDING 2017 R'000	CARRYING AMOUNT 2018 R'000	CARRYING AMOUNT 2017 R'000
Active investments					
African Clinical Research Organisation (Pty) Ltd*	31 Mar	- %	83.01 %	-	-
Bio2Biz (Pty) Ltd	31 Dec	58.75 %	58.75 %	-	-
Investments in deregistration/liquidation		- %	- %	-	-
Capelands Nurseries (Pty) Ltd	31 Mar	100.00 %	100.00 %	-	-
Ithemba Pharmaceuticals (Pty) Ltd	31 Dec	50.10 %	50.10 %	-	-
Natural Carotenoids South African (Pty) Ltd	31 Jul	98.83 %	98.83 %	-	-
				-	-

* The investment in this entity was sold during the current financial year.

The carrying amounts of controlled entities are shown net of impairment losses.

7. INVESTMENTS IN ASSOCIATES

CONTROLLED ENTITIES WITH DIFFERENT REPORTING DATES FROM THAT OF THE CONTROLLING ENTITY

A number of controlled entities have reporting dates that differ from the controlling entity. If the reporting date is within a 3 month period of the reporting period of the controlling entity, the annual financial statements for that period will be used in consolidating the results of the entity. The management accounts for the entities were reviewed in order to ensure that no significant changes took place between the reporting date and 31 March 2018.

Where the reporting dates differ with more than 3 months, a review of the financial affairs of the entity is performed up to the reporting date of the controlling entity and this is used for consolidation purposes.

	REPORTING PERIOD END	% HOLDING 2018	% HOLDING 2017	EQUITY ACCOUNTED 2018 R'000	EQUITY ACCOUNTED 2017 R'000	CARRYING AMOUNT 2018 R'000	CARRYING AMOUNT 2017 R'000
Active Investments							
Blue Cube Systems (Pty) Ltd*	31 Dec	- %	25.00 %	-	5,605	-	3,013
LifeAssay (Pty) Ltd	28 Feb	26.00 %	26.00 %	-	-	-	-
Ribotech (Pty) Ltd	31 Aug	35.00 %	35.00 %	-	-	-	-
Investments in deregistration/liquidation		**- %**	**- %**	**-**	**-**	**-**	**-**
Bio Career Technology (Pty) Ltd	28 Feb	51.00 %	51.00 %	-	-	-	-
Commercial Aquaculture (Pty) Ltd	28 Feb	34.00 %	34.00 %	-	-	-	-
Control Maze (Pty) Ltd	28 Feb	51.00 %	51.00 %	-	-	-	-
Edgi Tech (Pty) Ltd	28 Feb	26.00 %	26.00 %	-	-	-	-
Eyeborn (Pty) Ltd	31 Mar	25.00 %	25.00 %	-	-	-	-
Femtech (Pty) Ltd	28 Feb	69.00 %	69.00 %	-	-	-	-
Geratech Zirconium Benefication (Pty) Ltd	28 Feb	34.00 %	34.00 %	-	-	-	-
Mycoroot (Pty) Ltd	28 Feb	25.00 %	25.00 %	-	-	-	-
Niocad (Pty) Ltd	28 Feb	22.00 %	22.00 %	-	-	-	-
Nkomazi Chemicals (Pty) Ltd	30 Jun	35.74 %	35.74 %	-	-	-	-
Silverlake Trading (Pty) Ltd	28 Feb	28.00 %	28.00 %	-	-	-	-
Stellenbosch Wind Energy Technologies (Pty) Ltd	31 Mar	26.00 %	26.00 %	-	-	-	-
Tenacent SA (Pty) Ltd	28 Feb	20.00 %	20.00 %	-	-	-	-
				-	**5,605**	**-**	**3,013**

The carrying amounts of investments in associates are shown net of impairment losses.

Although the controlling entity holds more than 50% of the voting powers in some of the entities, the investment is not considered a controlled entity because the controlling entity does not have control over the entity due to voting rights/ appointment powers of directors. These investments are therefore classified as investments in associates.

* The investment in this entity was sold during the current financial year.

MOVEMENTS IN CARRYING VALUE	ECONOMIC ENTITY 2018 R'000	ECONOMIC ENTITY 2017 R'000	CONTROLLING ENTITY 2018 R'000	CONTROLLING ENTITY 2017 R'000
Opening balance	5,605	5,718	3,013	3,013
Share of (deficit)/surplus	130	(113)	-	-
Sale of investment in associate	(5,735)	-	(3,013)	-
	-	**5,605**	**-**	**3,013**

7. INVESTMENTS IN ASSOCIATES (CONTINUED)	CONTROLLING ENTITY 2018 R'000	CONTROLLING ENTITY 2017 R'000

PRINCIPAL ACTIVITIES

LEGAL NAME	PRINCIPAL ACTIVITY
LifeAssay Diagnostics (Pty) Ltd	Manufacturer of vitro diagnostics test kits
Ribotech (Pty) Ltd	Manufacturing of rHOG-CSF. Product is used in cancer treatment

All the above entities are incorporated in South Africa

SUMMARY OF CONTROLLING ENTITY'S INTEREST IN ASSOCIATES

Total assets	22,871	42,723
Total liabilities	(153,208)	(154,567)
Net liabilities	(130,337)	(111,844)
Revenue	4,300	35,879
Deficit	(10,165)	(10,616)

ASSOCIATES WITH DIFFERENT REPORTING DATES

A number of associate entities have reporting dates that differ from that of the controlling entity. If the reporting date is within a 3 month period of the reporting period end of the controlling entity, the annual financial statements for that period will be used in the results of the entity using equity accounting. The management accounts for the entities were reviewed in order to ensure that no significant changes took place between reporting date and 31 March 2018.

UNRECOGNISED SHARE OF LOSSES OF ASSOCIATES

The economic entity has discontinued recognising its share of the deficits of associate companies, as the investment is held at R nil and the economic entity has no obligation for any deficits of the associate. The total unrecognised deficits for the current period amount to R3,697,116 (2017: R3,697,116). The accumulated unrecognised deficits to date amount to R55,269,373 (2017: R51,572,258).

	ECONOMIC ENTITY		CONTROLLING ENTITY	
8. LOANS AND RECEIVABLES	**2018 R'000**	**2017 R'000**	**2018 R'000**	**2017 R'000**
Synexa (Pty) Ltd *This loan has fixed quarterly repayment terms over a period of 6 years and accrues interest at prime*	5,734	-	5,734	-
Synexa (Pty) Ltd - current portion *This loan has fixed quarterly repayment terms over a period of 6 years and accrues interest at prime*	(1,389)	-	(1,389)	-
Xsit (Pty) Ltd *The loan has fixed repayment terms over a period of 5 years and accrues interest at prime plus 1%*	-	5,029	-	5,029
Xsit (Pty) Ltd - current portion *The loan has fixed repayment terms over a period of 5 years and accrues interest at prime plus 1%*	-	(1,577)	-	(1,577)
	4,345	3,452	4,345	3,452

Carrying amounts of loans and receivables are shown net of impairment losses.

8. LOANS AND RECEIVABLES

LOANS TO ASSOCIATES AND OTHER ENTITIES IMPAIRED

As of 31 March 2018, loans to associates and other entities of R163,653,818 (2017: R175,279,685) were impaired and provided for. The movement from prior year to current year includes the sale of previously impaired investee companies as well as current year impairment.

The creation and release of provision for impaired receivables has been included in operating expenses in the statement of financial performance. Amounts charged to the allowance account are generally written off when the recovery of such amounts is improbable.

The economic entity does not hold collateral as security.

	ECONOMIC ENTITY		CONTROLLING ENTITY	
9. OTHER FINANCIAL ASSETS	**2018 R'000**	**2017 R'000**	**2018 R'000**	**2017 R'000**
The Biologicals and Vaccines Institute of SA (Pty) Ltd	26,300	26,300	26,300	26,300

10. FINANCE LEASE OBLIGATION

MINIMUM LEASE PAYMENTS DUE

- within one year	134	61	134	61

PRESENT VALUE OF MINIMUM LEASE PAYMENTS DUE

- within one year	134	61	134	61

It is the economic entity's policy to lease certain office equipment under finance leases.

The average lease term is 5 years and the average effective borrowing rate was 0% (2017: 0%).

11. TRADE AND OTHER PAYABLES

Trade payables	16,119	22,913	15,372	21,343
Employee related accruals	9,468	7,228	9,468	7,026
Other payables	483	1,915	483	522
	26,070	**32,056**	**25,323**	**28,891**

12. LOANS FROM SHAREHOLDERS	ECONOMIC ENTITY 2018 R'000	ECONOMIC ENTITY 2017 R'000	CONTROLLING ENTITY 2018 R'000	CONTROLLING ENTITY 2017 R'000
Loans from shareholders	-	2,762	-	-

These loans are non-interest bearing and have no fixed repayment terms.

13. COMMITTED CONDITIONAL GRANTS AND RECEIPTS

Committed conditional grant balances comprise of:

UNSPENT CONDITIONAL GRANTS AND RECEIPTS

Advanced Manufacturing Technology Strategy	3,531	3,531	3,531	3,531
Agriculture Bio-Economy Partnership Programme	5,585	-	5,585	-
Africa Programme	1,729	1,001	1,729	1,001
SABDI (Biodesign initiative programme)	24,083	18,384	24,083	18,384
Bio-entreperneurship programme	45	52	45	52
Bio-fuels	3,869	3,597	3,869	3,597
Biosafety Communication Strategy	1,044	1,251	1,044	1,251
Fibrelux technology diffusion initiative	30	28	30	28
Forest molecular genomics	4,034	-	4,034	-
ICT flagship programme	3,000	3,000	3,000	3,000
Innovation Bridge	1,796	4,293	1,796	4,293
Innovation for Inclusive Development	31,450	1,923	31,450	1,923
Limpopo Agri Food Technology Station	107	100	107	100
NRF Newton Fund	-	505	-	505
Social innovation housing	202	-	202	-
Sugarcane research projects	2,108	1,960	2,108	1,960
Technology Station Programme	5,522	14,327	5,522	14,327
Technology Station expansion programme	137	491	137	491
	88,272	**54,443**	**88,272**	**54,443**

14. REVENUE FROM NON-EXCHANGE TRANSACTIONS

DST allocation received during the year	396,732	382,364	396,732	382,364
Committed conditional grant funding recognised for:	-	-	-	-
Africa programme	628	-	628	-
Bio-entrepeneurship programme	10	89	10	89
Bio-fuels	-	4,823	-	4,823
Biosafety communication strategy	297	389	297	389
CHUMA (NRF Newton fund)	505	1,495	505	1,495
Fibrelux technology diffusion initiative	-	569	-	569
Innovation Bridge	2,735	3,314	2,735	3,314
Innovation for Inclusive Development	1,707	-	1,707	-
SABDI (Biodesign initiative programme)	3,333	61	3,333	61
Seed Fund Programme	15,312	10,082	15,312	10,082
Technology Station Programme	44,864	62,591	44,864	62,591
	466,123	**465,777**	**466,123**	**465,777**

15. OTHER INCOME	ECONOMIC ENTITY 2018 R'000	ECONOMIC ENTITY 2017 R'000	CONTROLLING ENTITY 2018 R'000	CONTROLLING ENTITY 2017 R'000
Royalties received	1,362	2,159	1,362	2,159
Sundry receipts	218	5,469	218	737
EWSETA funding received	-	3,075	-	3,075
(Loss)/profit on disposal of assets	(83)	384	(83)	384
Limpopo Agri Food Technology Station	-	845	-	845
Reversal of provision	4,661	2,170	4,661	2,170
UNIDO funding received	1,073	1,464	1,073	1,464
	7,231	**15,566**	**7,231**	**10,834**

16. INVESTMENT INCOME

INTEREST RECEIVED

Interest earned - Loans and receivables	102	-	102	-
Interest earned - Bank	10,201	15,315	10,129	14,951
Interest received - Loans and receivables	1,841	640	1,841	640
	12,144	**15,955**	**12,072**	**15,591**

17. EMPLOYEE RELATED COSTS

Remuneration	91,438	87,004	91,438	82,322
Defined contribution plans	7,279	6,352	7,279	6,352
	98,717	**93,356**	**98,717**	**88,674**

Employee costs for the internal technology platforms are included in project funding expenditure disclosed in note 18.

18. PROJECT FUNDING EXPENDITURE

Project grants - third party	309,123	450,476	309,123	450,891

PROJECT FUNDING EXPENDITURE IS MADE UP OF THE FOLLOWING:

Technology development	92,435	98,784	92,435	99,199
Technology Innovation Cluster Programme	13,781	40,110	13,781	40,110
Technology Station Programme	98,617	123,740	98,617	123,740
Technology Platform Programme *	51,034	76,425	51,034	76,425
Youth Technology Innovation Programme	4,695	15,871	4,695	15,871
Seed Fund Programme	35,259	71,958	35,259	71,958
Innovation Skills Development Programme	6,266	16,458	6,266	16,458
Thought Leadership	3,831	4,761	3,831	4,761
Contracted conditional grant spend not disclosed above	2,336	61	2,336	61
Other	869	2,308	869	2,308
	309,123	**450,476**	**309,123**	**450,891**

* Included in the Technology Platform Programme expenditure are operational costs associated with internal platforms such as salaries and depreciation.

19. IMPAIRMENT	ECONOMIC ENTITY 2018 R'000	ECONOMIC ENTITY 2017 R'000	CONTROLLING ENTITY 2018 R'000	CONTROLLING ENTITY 2017 R'000
Impairment of property and equipment	1,000	-	1,000	-
Impairment of financial assets at amortised cost	223	14,236	223	14,236
Bad debts written off	-	28	-	13
	1,223	**14,264**	**1,223**	**14,249**

20. OTHER OPERATING EXPENSES

OTHER OPERATING EXPENSES INCLUDE EXPENDITURE SUCH AS:				
Auditors remuneration	1,319	1,209	1,319	1,123
Consulting and professional fees	8,173	6,735	8,239	4,352
IT expenses	5,457	6,424	5,457	6,215
Marketing	1,409	2,600	1,409	2,117
Printing and stationery	577	1,078	577	1,042
Security	1,290	1,424	1,290	1,098
Training	4,210	3,855	4,210	3,829
Travel and accommodation	7,309	6,276	7,309	6,276
Electricity	1,425	1,401	1,425	1,156
Subscription and certification costs	2,898	782	2,898	782

21. TAXATION

The controlling entity is exempt from income tax in terms of the provisions of section 10(1)(cA)(i) of the Income Tax Act.

22. NET CASH FLOWS USED IN OPERATING ACTIVITIES

Deficit	11,875	(108,655)	25,009	(106,960)
Adjustments for:				
Depreciation and amortisation	7,298	4,617	7,298	4,254
(Gain)/loss on foreign exchange	132	337	-	-
Profit/(loss) from equity accounted investments	(130)	113	-	-
Assets written off	(1,124)	-	-	-
Loss/(profit) on sale of investments	9,717	-	(3,683)	-
Impairment	1,223	14,264	1,223	14,249
Reversal of provision	(4,661)	-	(4,661)	-
Interest on loan accounts	(1,780)	-	(1,780)	-
Changes in working capital:				
Trade and other receivables	4,388	10,867	1,703	11,583
Prepayments	768	(2,476)	768	(2,473)
Trade and other payables	(5,926)	9,340	(3,490)	8,063
	21,780	**(71,593)**	**22,387**	**(71,284)**

	CONTROLLING ENTITY	
23. RELATED PARTIES	**2018 R'000**	**2017 R'000**

RELATIONSHIPS

Members	Refer to members' report note
Controlled entities	Refer to note 6
Associates	Refer to note 7
National Department	Ministry of Science and Technology
National Government Business Enterprises	Council for Scientific and Industrial Research
National Public Entities	Agricultural Research Council/Onderstepoort Biological Products SOC

RELATED PARTY BALANCES

LOAN ACCOUNTS - OWING TO RELATED PARTIES		
ACRO - Batswadi Pharmaceuticals (Pty) Ltd	-	(2,625)
COMMITTED CONDITIONAL GRANTS		
Ministry of Science and Technology	(88,272)	(54,443)

RELATED PARTY TRANSACTIONS

ROYALTIES RECEIVED FROM RELATED PARTIES		
TIA - Royalties received from associates	(346)	(778)
ALLOCATIONS RECEIVED		
TIA - Ministry of Science and Technology	(489,183)	(474,095)
PROJECT FUNDS RETURNED		
TIA - Agricultural Research Council	-	(299)
TRANSACTIONS WITH		
TIA - Council for Scientific and Industrial Research	19,228	13,298
TIA - Agricultural Research Council	13,354	23,347

24. MEMBERS' EMOLUMENTS

EXECUTIVE: 2018	EMOLUMENTS R'000	ANNUAL BONUS R'000	ALLOWANCES* R'000	TOTAL R'000
Mr. B Manilal - CEO	2,876	233	4	3,113
Mr. W van der Merwe - CFO	2,207	182	20	2,409
Ms. F Pienaar	1,745	141	1	1,887
Dr BM Sehlapelo	1,717	-	4	1,721
Ms. B Lue-Marais (until 30/09/2017)	889	-	-	889
Ms. S Pillay (Acting since 01/10/2017)	461	-	68	529
Mr. V Skosana (Acting since 01/10/2017)	520	-	80	600
Ms. M Matlolane (Acting since 01/12/2017)	402	-	63	465
Ms. J Hechter (Acting since 15/03/2018)	52	-	-	52
	10,869	**556**	**240**	**11,665**

* Allowances include the following: Cell phone, car, acting, travel and subsistence.

EXECUTIVE: 2017	EMOLUMENTS R'000	ANNUAL BONUS R'000	ALLOWANCES* R'000	TOTAL R'000
Mr. B Manilal - CEO (from 01/04/2015)	2,681	199	6	2,886
Mr. W van der Merwe - CFO	2,070	154	20	2,244
Ms. F Pienaar (from 01/07/2015)	1,624	90	-	1,714
Dr S Gumbi (until 30/11/2015) **	1,482	-	5	1,487
Ms. P Maruping (until 31/01/2016)	418	-	-	418
	8,275	**443**	**31**	**8,749**

* Allowances include the following: Cell phone, car, acting, travel and subsistence.

** Although Dr S Gumbi terminated her employment contract with the controlling entity on 30 November 2015, her services were retained on a fixed term contract for the remaining 4 months of the financial

BOARD: 2018	MEMBERS' FEES R'000	OTHER FEES R'000	TOTAL R'000
Ms. K Njobe**	10	-	10
Ms. H Brown**	8	-	8
Prof D Hildebrandt**	8	-	8
Prof D Kaplan**	13	-	13
Adv M Ralefatane**	5	-	5
Dr P Terblanche**	8	-	8
Prof EC Kieswetter*	60	-	60
Dr J Coates*	71	-	71
Dr SJ Lennon*	93	-	93
Ms. F Levy-Hassen*	-	2	2
Dr M Madikizela*	83	-	83
Prof RD Marcus* (resigned on 07/03/2018)	33	-	33
Ms. JSP Matsebula*	64	-	64
Dr PL Mlengana*	45	-	45
Mr. TG Ramasike*	99	-	99
Dr J van de Loosdrecht*	86	-	86
	686	**2**	**688**

*The current Board's term started on 1 May 2017.

** The previous Board's term ended on 30 April 2017.

24. MEMBERS' EMOLUMENTS (CONTINUED)

BOARD: 2017	MEMBERS' FEES R'000	OTHER FEES R'000	TOTAL R'000
Ms. K Njobe	93	-	93
Ms. H Brown	87	-	87
Prof D Kaplan	106	-	106
Dr S Lennon	95	1	96
Adv M Ralefatane	80	-	80
Ms. R Xaba	77	-	77
Dr P Terblanche	113	-	113
Prof D Hildebrandt (from 09/09/2015)	75	-	75
Mr. C Venter (to 06/06/2011)	-	3	3
ACRO (non-executive directors)			
Mr. D du Toit	14	-	14
	740	**4**	**744**

25. CONTINGENCIES

CONTINGENT LIABILITIES

ROLL OVER OF FUNDS (CONTROLLING ENTITY)

In terms of section 53(3) of the PFMA an entity may not accumulate surpluses unless prior written approval is obtained from National Treasury. The controlling entity will apply the principles as set out in the instruction from National Treasury. The final impact of the outcome of the application to National Treasury as well as the potential outflow of economic benefits could not be determined at period end.

PROJECT FUNDING	ECONOMIC ENTITY		CONTROLLING ENTITY	
Project funding in terms of funding agreements.	2018 R'000	2017 R'000	2018 R'000	2017 R'000
Funding agreements	154,656	219,793	154,656	219,793

These agreements will be funded using surplus cash and funds to be allocated in the financial periods in which these agreements become payable.

26. COMMITMENTS

AUTHORISED CAPITAL EXPENDITURE

ALREADY CONTRACTED FOR BUT NOT PROVIDED FOR

• Property and equipment	781	87	781	87
• Intangible assets	-	208	-	208
	781	**295**	**781**	**295**

This committed expenditure relates to computer equipment and computer software and will be financed by available funds.

26. COMMITMENTS (CONTINUED)	ECONOMIC ENTITY 2018 R'000	ECONOMIC ENTITY 2017 R'000	CONTROLLING ENTITY 2018 R'000	CONTROLLING ENTITY 2017 R'000
OPERATING LEASES - AS LESSEE (EXPENSE)				
MINIMUM LEASE PAYMENTS DUE				
• within one year	7,627	8,912	7,627	8,820
• in second to fifth year inclusive	1,189	8,314	1,189	8,314
	8,816	**17,226**	**8,816**	**17,134**

Operating lease payments represent rentals payable by the economic entity for certain of its offices. Leases are negotiated for an average term of five years and rentals are fixed for an average of three years. No contingent rent is payable.

27. RISK MANAGEMENT

CAPITAL RISK MANAGEMENT

The economic entity's objectives when managing capital are to safeguard their ability to continue as a going concern in order to provide benefits to its stakeholders and to maintain an optimal capital structure to reduce the cost of capital.

The capital structure of the economic entity consists of cash and cash equivalents disclosed in note 3 and reserves as disclosed in the statement of financial position.

There are no externally imposed capital requirements and there were no changes in what the entity does to manage capital.

FINANCIAL RISK MANAGEMENT

The economic entity's activities expose it to a variety of financial risks: market risk (including currency risk, foreign currency risk and cash flow interest rate risk), credit risk and liquidity risk.

LIQUIDITY RISK

The economic entity manages liquidity risk through the compilation and monitoring of cash flow forecasts as well as ensuring that there are adequate banking facilities.

The maturity profiles of the financial instruments are summarised as follows:

ECONOMIC ENTITY	LESS THAN 1 YEAR R'000	BETWEEN 1 AND 2 YEARS R'000	BETWEEN 2 AND 5 YEARS R'000	OVER 5 YEARS R'000
AT 31 MARCH 2018				
Trade and other payables	26,070	-	-	-
Finance lease liability	134	-	-	-
AT 31 MARCH 2017				
Trade and other payables	32,056	-	-	-
Loans from shareholders	-	-	-	2,762
Finance lease liability	61	-	-	-

27. RISK MANAGEMENT (CONTINUED)

CONTROLLING ENTITY AT 31 MARCH 2018	LESS THAN 1 YEAR R'000	BETWEEN 1 AND 2 YEARS R'000	BETWEEN 2 AND 5 YEARS R'000	OVER 5 YEARS R'000
Trade and other payables	25,323	-	-	-
Finance lease liability	134	-	-	-
AT 31 MARCH 2017				
Trade and other payables	28,891	-	-	-
Finance lease liability	61	-	-	-

INTEREST RATE RISK

Changes in interest rates will affect the revenue from exchange transaction revenue stream as the return on investment of surplus funds is linked to the prime rate.

CASH FLOW INTEREST RATE RISK

FINANCIAL INSTRUMENT	CURRENT INTEREST RATE	DUE IN LESS THAN A YEAR	DUE IN ONE TO TWO YEARS	DUE IN TWO TO THREE YEARS	DUE IN THREE TO FOUR YEARS	DUE AFTER FIVE YEARS
Cash reserves at CPD	7.08 %	87,237	-	-	-	-
Cash reserves at Standard Bank of South Africa	5.00 %	39,408	-	-	-	-
Other cash reserves at commercial banks	Various %	2,281	-	-	-	-

CREDIT RISK

Potential concentrations of credit risk consist mainly of cash and cash equivalents and trade receivables. The economic entity limits its counterparty exposures from its bank accounts by investing surplus funds with well-established financial institutions with a high quality credit standing. The credit exposure to any one counterparty is managed by monitoring transactions.

Loans and receivables, investment in controlled entities, investment in associates and other investments consist mainly of funding granted to start up companies. The exposure to credit risk is managed through ongoing review of the operating results and financial position of the investee companies. Should the entity have doubt over the recoverability of the loan or the value of the investment, the loan/investment is impaired and further funding is carefully considered.

Financial assets exposed to credit risk at year end were as follows:

	ECONOMIC ENTITY		CONTROLLING ENTITY	
FINANCIAL INSTRUMENT	2018	2017	2018	2017
Cash and cash equivalents	128,926	70,198	126,664	64,567
Trade and other receivables	1,503	5,886	1,503	3,417
Loans and receivables	5,734	5,029	5,734	5,029

27. RISK MANAGEMENT

The entity has little doubt over the recoverability of trade and other receivables not considered to be impaired at year end.

The entity has reviewed the financial position of each of the entities where they have not impaired the loan disbursed or investment made to the investee company and based on this, management is of the opinion that at period end the amount is recoverable.

FOREIGN EXCHANGE RISK

Foreign currency exposure arises from the sale of goods by entities within the economic entity.

The economic entity reviews its foreign currency exposure, including commitments on an ongoing basis.

28. IRREGULAR EXPENDITURE

	ECONOMIC ENTITY		CONTROLLING ENTITY	
	2018 R'000	2017 R'000	2018 R'000	2017 R'000
Opening balance	7,923	43,923	-	36,000
Incurred by controlled entities	-	522	-	-
Less: Condoned	-	(19,403)	-	(19,403)
Less: Written off as not condoned and not recoverable	-	(16,597)	-	(16,597)
Less: Condoned by the Board of controlled entities	-	(522)	-	-
	7,923	**7,923**	**-**	**-**

Economic entity: 13 controlled entities were inherited when the trusts (Biopad, Lifelab, Plantbio, Thumisano, Innovation Fund, Cape Biotech Trust) were combined to form TIA. The entities were not set up to comply with the detail requirements of Treasury Regulation 16A6.1. The controlling entity is continuing to exit these entities and of the original 13 only 5 are remaining.

Controlling entity: No irregular expenditure was incurred during FY2017/18.

29. FRUITLESS AND WASTEFUL EXPENDITURE

Opening balance	80	58	-	-
Fruitless and wasteful expenses incurred by controlled entities	-	22	-	-
	80	**80**	**-**	**-**

Economic entity: The nature of the expenses that could have been avoided are interest and penalties on PAYE for two controlled entities which were subsequently deregistered.

30. LOSSES THROUGH CRIMINAL CONDUCT

Losses through criminal conduct				
Losses during the financial year	30	79	30	79
Losses recovered	(65)	(234)	(65)	(234)
	(35)	**(155)**	**(35)**	**(155)**

Controlling entity: Losses relate mainly to damaged laptops. Insurance claims were lodged to minimise the losses.

31. BUDGET DIFFERENCES

MATERIAL DIFFERENCES BETWEEN BUDGET AND ACTUAL AMOUNTS

The controlling entity continued to clamp spending on operational expenditure to increase the efficiency in which it operates. A further focus was to ensure that the right human resources were recruited as well as the optimisation of the human resources already employed, which resulted in savings on employee related costs. Savings realised were redeployed and made available for project funding. Furthermore, the controlling entity reviewed the innovation landscape and prioritised investment into the technology enabling environment through additional investment into the Seed Fund Programme and the Technology Station Programme. This necessitated a budget amendment during the year.

31.1 The controlling entity realised early in the year that the achievement of raising other income (in cash) was unlikely and put mitigating actions in place. The budget was amended to reflect the adjustments. The recognition criteria for the performance target was also amended to align with the requirements of GRAP 23 and GRAP 9 and consequently the significant variance was realised at period end.

31.2 The controlling entity invested money towards additional requirements from the entity's stakeholders for seed funding, infrastructure investments and towards projects where milestones were reached ahead of schedule.

32. SEGMENT INFORMATION

GENERAL INFORMATION IDENTIFICATION OF SEGMENTS

The controlling entity is organised and reports to management on the basis of three major functional areas:technology development, technology enabling and support and administrative activities. The segments were organised around the type of service delivered and the target market within the National System of Innovation. Management uses these same segments for determining strategic objectives.

Information reported about these segments is used by Management as a basis for evaluating the segments' performances and for making decisions about the allocation of resources. The disclosure of information about these segments is also considered appropriate for external reporting purposes.

SEGMENT SURPLUS OR DEFICIT, ASSETS AND LIABILITIES CONTROLLING ENTITY - 2018	TECHNOLOGY DEVELOPMENT R '000	TECHNOLOGY ENABLING AND SUPPORT R '000	ADMINISTRATION AND STRATEGIC ENGAGEMENTS R '000	TOTAL R '000
Revenue				
Revenue from non-exchange transactions	88,563	214,417	163,143	466,123
Other income	1,172	1,291	4,768	7,231
Interest received	1,943	-	10,129	12,072
Profit on sale of investment	3,683	-	-	3,683
Total segment revenue	**95,361**	**215,708**	**178,040**	**489,109**
Entity's revenue				**489,109**
Expenditure				
Salaries and wages	28,691	15,778	54,248	98,717
Other expenses	2,765	2,636	50,859	56,260
Project funding expenditure	92,435	216,688	-	309,123
Total segment expenditure	**123,891**	**235,102**	**105,107**	**464,100**
Total segmental surplus/(deficit)				**25,009**

32. SEGMENT INFORMATION (CONTINUED)

CONTROLLING ENTITY - 2017	TECHNOLOGY DEVELOPMENT R '000	TECHNOLOGY ENABLING AND SUPPORT R '000	ADMINISTRATION AND STRATEGIC ENGAGEMENTS R '000	TOTAL R '000
Revenue				
Revenue from non-exchange transactions	99,694	289,787	76,549	466,030
Other income	2,412	5,515	2,907	10,834
Interest income	640	-	14,951	15,591
Total segment revenue	**102,746**	**295,302**	**94,407**	**492,455**
Entity's revenue				**492,455**
Expenditure				
Salaries and wages	26,139	14,033	48,502	88,674
Other operating expenditure	1,734	3,221	54,895	59,850
Project funding expenditure	99,199	351,692	-	450,891
Total segment expenditure	**127,072**	**368,946**	**103,397**	**599,415**
Total segmental surplus/(deficit)				**(106,960)**

ANNEXURE A

LIST OF ABBREVIATIONS AND ACRONYMS

3D	Three-dimensional
ABIPP	Agricultural Bio-Economy Innovation Partnership Programme
ACCI	African Centre for Crop Improvement
ACI	National Advisory Council for Innovation
ACRO	African Clinical Research Organisation
Adv.	Advocate
AG	Auditor General
AGAP	Africa Geospatial Access Platform
Agri	Agriculture
AHTIP	Animal Health Technology Innovation Programme
AM	Advanced Manufacturing
AMTRP	Advanced Manufacturing Technology Roadmap Project
AMTS	Advanced Manufacturing Technology Strategy
API	Active Pharmaceutical Ingredients
APP	Annual Performance Plan
AR	Annual Report
ARC	Agriculture Research Council or Audit and Risk Committee
ASSAf	Academy of Science of South Africa
ATIP	Aerospace Technology Innovation Program
ATNS	Air Traffic Navigation Systems
ATS – CPUT	Agri-foods Technology Station - Cape Peninsula University of Technology
AU-IBAR	African Union-Inter African Bureau for Animal Resources
AVE	Advertising Value Equivalent
AVG	Automated Guided Vehicle
BAC	Bid Adjudication Committee
BAKM	Business Analysis & Knowledge Management
BC	British Council
BCS	Blue Cube System
BEE	Black Economic Empowerment
BFS	Bankable Feasibility Study
BIDC	Bio-manufacturing Industry Development Centre
BiODX	Biological Chemical Technologies (Pty) Ltd
BGP	Beef Genomics Programme
BIDR	Bioprocessing and Institute of Diagnostic Research
BIO	Biological
Biovac	Biovac Institute
BKB	Boere Kooperasie Beperk
BOSS	Bio-transformation and Oxidative Stress Status
BRICs	Bio-technology Regional Innovation Centres (or Brazil, Russia, India and South Africa, depending on the context in which it is used)
BTDP	Biofuels Technology Demonstration Programme
C.O.J.E.D.I.	City of Johannesburg Educating Digital Intern Programme
CAD	Computer-Aided Design
CAPEX	Capital Expenditure
CCDI	Cape Craft and Design Institute
CEF	Chief Finance Officer
CEIP	Centre for Engineering Innovation and Production
CENQAM	Centre for Quality Assurance of Medicines
CEO	Chief Executive Officer
CHIETA	The Chemical Industries Education and Training Authority
CHUMA	Future 500 Commercialisation Internship Initiative (A TIA ISD project)
CMW	Cape Mohair and Wool
COC	Certificate of Conformance (or Compliance, depending on the context in which it is used)
COO	Chief Operations Officer
CPD	Continuous Professional Development
CPGR	Centre for Proteomic & Genomic Research
CPSI	Centre for Public Service Innovation
CPT Pharma	Chemical Process Technologies - Pharma
CPT	Chemical Process Technologies
CPUT	Cape Peninsula University of Technology
CRC	Cooperative Research Centre (of Australia - beef)
CRO	Chief Risk Officer
CSFE	Continuous Supercritical Fluid Extraction
CSIR	Council for Scientific and Industrial Research
CSN	Casting Simulation network
CTS	Critical Thinking Skills
CUBIC	Cape University Body Imaging Centre
CUT	Central University of Technology
DAFF	Department of Agriculture, Forestry, and Fisheries
DCTS-NMMU	Downstream Chemicals Technology Station – Nelson Mandela Metropolitan University
DEED	Department of Economy and Enterprise Development
DD	Due Diligence
DFI	Development Finance Institutions
DGP	Dairy Genomics Programme
DIPLOMICS	Distributed Platforms for Omics
DIY	Do-It-Yourself
DoA	Delegation of Authority
DoE	Department of Energy
DPSS	Diode Pumped Solid State
Dr	Doctor
DRDLR	The Department of Rural Development and Land Reform
DSBD	Department of Small Business Development
DST	Department of Science and Technology
DTSP	Department of Telecommunications and Postal Services
DUT	Durban University of Technology
DUT-IEETRC	Durban University of Technology – Industrial Energy Efficiency Training & Resource Centre
ECDC	Eastern Cape Development Corporation

LIST OF ABBREVIATIONS AND ACRONYMS (CONTINUED)

ED	Enterprise Development
EIA	Economic Impact Assessment
eNtsa-NMMU	eNtsa at Nelson Mandela Metropolitan University
ESN	Enterprise Social Network
ESTA	Energy Strategic Technology Area
EU	European Union
EV	Electric Vehicle
EVIA	Electric Vehicle Industry Association
EWSETA	Energy and Water Sector Education and Training Authority
EXCO/Exco	Executive Committee
FASSET	Finance and Accounting Services Sector Education and Training
FDI	Foreign Direct Investment
FLIP	Foresight Leadership Innovation Programme
FMS	Fund Management Systems
FTI	Foundation for Technological Innovation
FUTURE 500	Future 500 (A TIA ISD Programme)
FY	Financial Year
GAP	Gauteng Accelerator Programme
GasCam	Use for detection of methane gases in mines
GCIP	Global Cleantech Innovation Programme
GCIP-SA	Global Cleantech Innovation Programme – South Africa
GDP	Gross Domestic Product
GEBVs	Genetically Enhanced Breeding Valves
GEF	Global Environment Facility
GFIA	Global Forum for Innovation in Agriculture
GIT	Green Iron Technology
GLDSA	Geo-location Based Dynamic Spectrum Allocation System
GM	Genetically Modified
GMO	Genetically Modified Organisms Act
GMP	Genetically Modified products
GMS	General Management System
GPT	Geo Pollution Technologies
GR	Genomic Research
GRAP	Generally Recognised Accounting Practice
H3D	Drug discovery and development center
HAITI	Embassy of HAITI
HEI	Higher Education Institution
HEIs	Higher Education Institutes
HIV	Human Immunodeficiency Virus
HLA	Human Leukocyte Antigen
HR	Human Resources
HSRC	Human Science Research Council
HVAC	Heating, ventilation and air conditioning
HySA	Hydrogen South Africa
IAC	Internal Assessment Committee (at TIA)
IAT-SU	Institute for Advanced Tooling – Stellenbosch University
IAT-TUT	Institute for Advanced Tooling – Tshwane University of Technology
IAT-WSU	Institute for Advanced Tooling – Walter Sisulu University
Ibatech	Indigenous Botanical Adjuvant Technology
ICGEB	International centre for Genetic Engineering Bio-technology (founded by UNIDO in 1994)
ICT	Information and Communications Technology
IDC	Industrial Development Cooperation
IDF	Identity Development Fund
IES	Innovation Enabling and Support (A Division in TIA)
IF	Innovation Fund
IFC	Investment Framework Committee
IFJ	Institute for Young Entrepreneurs
IFPCS	Innovation Funding, Pre-Commercialisation and Support (A Division in TIA)
IIA	Internal and Investment Audit (now only IA – Internal Audit)
IKS	Indigenous Knowledge System
IDF	International Diary Federation
Invo Tech	Innovation Technology Business Incubator
IoT	"Internet of Things"
IP	Intellectual Property
IPAP	Industrial Policy Action Plan
IPR	Intellectual Property Rights
IP	Intellectual Property
IPT	Integrated Pricing-label Technology
IRBA	Independent Regulatory Board of Auditors
ISD	Innovation Skills Development
ISDP	Innovation Skills Development Programme
ISO	International Organisation of Standardisation
IT	Information Technology
ITT	Innovating Tomorrow Together
IWWT	Institute of Water and Wastewater Technology
JICA	Japan International Cooperation Agency
JS	Jonker Sailplanes
KPI	Key Performance Indicator
KRISP	Kwazulu-Natal Research and Innovation Sequencing Platform
KZN	KwaZulu Natal
LATS	Limpopo Agro-food Technology Stations
LATS-UL	Limpopo Agro-food Technology Station – University of Limpopo
LEDA	Limpopo Economic Development Agency
LEDET	Limpopo Economic Development, Environment and Tourism
LIF	Innovation Fellowship Programme
LMNO	Lithium Manganese Nickel Oxide
LPG	Leak Proof Green
Ltd	Limited
m	Million
M&E	Monitoring and Evaluation
MADCap	Men of African Descent and Cancer of the Prostate
MARTI	Mycolic Acid Antibodies Real-time Inhibition
MCEP	Manufacturing Competitiveness Enhancement Program
MCTS-UJ	Metal Casting Technology Station – University of Johannesburg
MEA	Membrane Electrode Assembly
MMV	Medicines for Malaria Venture
MoA	Memorandum of Agreement

LIST OF ABBREVIATIONS AND ACRONYMS (CONTINUED)

MoU	Memorandum of Understanding
MP	Member of Parliament
MRC	Medical Research Council
MRI	Magnetic Resonance Imaging
MTEF	Medium-Term Expenditure Framework
MTSF	Medium Term Strategic Framework
MUT	Mangosuthu University of Technology
N/A	Not Applicable
NAACAM	National Association of Automotive Component and Allied Manufacturers
NACI	National Advisory Council for Innovation
NASAC	Network of African Science Academies
NCRST	National Commission on Research, Science and Technology
NCSA	Natural Carotenoids South Africa (Pty) Ltd
NDP	National Development Plan
NECSA	South African Nuclear Energy Corporation
NEF	National Empowerment Fund
NEPAD	New Economic Program for African Development
NextGen	Next Generation (A TIA ISD programme)
NGOs	Non-Governmental Organisations
NH1-MSap	Neo & Hollo's 1st Monitoring Solar Submersible pump
NIPMO	National Intellectual Property Management Office
NMMU	Nelson Mandela Metropolitan University
NMP	National Metabolimics Platform
NMR	Nuclear Magnetic Resonance
NPO	Non-Profit Organisation
NQF	National Quality Forum
NR	Natural Resources
NRDS	National REALTORS ® Database System
NRF	National Research Foundation
NSI	National System of Innovation
NT	National Treasury
NWGA	National Wool Growers Association
NWU	North West University
NYDA	National Youth Development Agency
OBP	Onderstepoort Biological Products
OECD	Organisation for Economic Co-operation and Development
OPEX	Operating Expenditure
OPS	Operational Plans
OTT	Office of Technical Transfer
OVI	Onderstepoort Veterinary Institute
PACES	Solar Power and Chemical Energy Systems
PDI	Previously Disadvantaged Individual
PDTS-CUT	Product Development Technology Station – Central University of Technology
PDW	Project Definition Workshop
PE	Port Elizabeth
PEETS	Process, Energy and Environmental Engineering Technology Station
PEETS-UJ	Process, Energy and Environmental Engineering Technology Station – University of Johannesburg
PFMA	Public Finance Management Act
PhD	Doctor of Philosophy
PI	Performance Indicator
PIC	Public Investment Corporation
PIs	Proxy Indicators
PitchFest	Pitching Festival
PLIEM	Potcefstroom Laboratory for Inborn Errors of Metabolism
PLMCC	Product Lifecycle Management Competency Center
PM	Programme Manager
PR	Public Relations
PRIME	Planning, Risks, Intelligence, Monitoring & Evaluation (A Business Unit in TIA)
PSF	People Systems and Facilities (replaced by CS- Corporate Services – a Division of TIA)
Pty	Proprietary
Q	Quarter
R&D	Research and Development
RAEng	Royal Academy of Engineering
RCIPS	Research Contracts & Intellectual Property Services
RDA	Regional Development Agencies
RDI	Research and Development Innovation
RDP	Reconstruction and Development Programme
RIIP	Research Institute of Industrial Pharmacy
RIFT	Research and Innovation in Foundry
Rm	Rand in Million
ROI	Return on Investment
RPN	Rubber Nano Products (or Reporting practice Note, depending on context in which it is used)
RSDTS-VUT	Rural & Sustainable Development Technology Station – Vaal University of Technology
RU	Rhodes University
SA	South Africa
SABDI	South African Bio-design Initiative
SABS	South African Bureau of Standards
SAENSE	Screening Applications and Exploring Novelty in Specialised Environments
SAHPRA	South African Health Products Regulatory Authority
SAICA	South African Institute of Chartered Accountants
SAM	Social Accounting Matrix
SANAS	South African National Accreditation System
SANEDI	South African National Energy Development Institute
SANSOR	South African National Seed Organisation
SANT	South African Technology Network
SARIMA	South African Research & Innovation Management Association
SASAS	South African Society for Animal Sciences
SASRI	South African Sugar Research Institute
SATN	South African Technology Network
SBD	Settle Bed Detector
SBD	Standard Bidding Documents
SC	Science Centre (or Steering Committee, depending on the context in which it is used)
SEDA	Small Enterprise Development Agency

LIST OF ABBREVIATIONS AND ACRONYMS (CONTINUED)

Seed Fund	The Seed Fund Programme (A TIA Programme)
SEFA	Small Enterprise Finance Agency
SERI	Sustainable Electronics Recycling International
SET	Science, Engineering Technology
SETI	Sector Education and Training institutions
SETIIP	Science Engineering and Science Engineering and Technology Industry Internship Proposals
SF	Seed Fund (A TIA Programme)
SFP	Seed Fund Programme (A TIA Programme)
SFU	Seed Fund Unit (A TIA Business Unit)
SHIP	Strategic Health Innovation Partnerships
SIC	Standard Industrial Classification
SLA	Service Legal Agreement
Sliek	Sliek Vitamin Supplements (Pty) Ltd
SMART	Specific, Measurable, Achievable, Relevant and Time-bound
SME	Small and Medium Enterprises
SMME	Small, Medium and Micro Enterprises
SNP	Single Nucleotide Polymorphism
SO	Strategic Objective
SOE	State Owned Enterprises
SOI	Statements of Interest
Solar PACES	Solar Power and Chemical Energy Systems
SOP	Standard Operating Procedure
SPV	Special Purpose Vehicle
SSAJRP	Swiss South Africa Joint Research Programme
SSRC	Strategic Stakeholder Relations and Communication (renamed to Marcoms – a Business Unit in TIA))
STA	Strategic Technology Area (Specific sub-programmes in TIA)
STEM	Science, Technology, Engineering, and Mathematics
STI	Science, Technology and Innovation
STIAS	Stellenbosch Institute for Advanced Study
SU	Stellenbosch University
SU/SUN	Stellenbosch University
SWET	Stellenbosch Wind Energy Technologies
TB	Tuberculosis
TDF	Technology Development Fund
TDM	Tool, Die, and Moulds
TDS	Titsetso Development Solutions
Tech NVST	ISD NextGen 100 Initiative
TI	Technical Indicator
TIA	Technology Innovation Agency
TICP	Technology Innovation Cluster Programme (of TIA)
TIH	The Innovation Hub
TIHMC	The Innovation Hub Management Company
TIPs	Technology Innovation Programmes (of TIA)
TLIU	Technology Localisation Implementation Unit
ToR	Terms of Reference
TPP	Technology Platforms Programme (of TIA)
TRL	Technology Readiness Level
TS	Technology Stations (at the various universities)
TSC&T	Technology Station in Clothing and Textiles
TSC-MUT	Technology Station in Chemicals & Chemistry – Mangosuthu University of Technology
TSCT-CPUT	Technology Station in Clothing and Textiles-Cape Peninsula University of Technology
TSC-TUT	Technology Station in Chemicals-Tshwane University of Technology
TSE-TUT	Technology Station in Electronics – Tshwane University of Technology
TSMPT-VUT	Technology Station in Material and Processing Technologies – Vaal University of Technology
TSP	Technology Stations Programme 0of TIA)
TTO	Technology Transfer Office (also called OTT – Offices of Technology Transfers)
TU-K	Technology University of Kenya
TUT	Tshwane University of Technology
TVET	Technical and Vocational Education and Training
UCT	University of Cape Town
UFH	University of Fort Hare
UFS	University of Free State
UHF	Ultra-High Frequency
UJ	University of Johannesburg
UJ-PEETS	University of Johannesburg – Process, Energy and Environmental Engineering Technology Station
UK	United Kingdom
UKZN	University of Kwa-Zulu Natal
UL	University of Limpopo
UNIDO	United Nations Industrial Development Organisation
UNISA	University of South Africa
UNIVEN	University of Venda
UNIZULU	University of Zululand
UOT	University of Technology
UP	University of Pretoria
USA	United States of America
UWC	University of Western Cape
VC	Venture Capital
VUT	Vaal University of Technology
W&R	Workout and Restructuring (A Business Unit in TIA)
WC TIA	Western Cape Technology Innovation Agency (a regional office of TIA)
WHC	Wits Health Consortium
WIL	Work Integrated Leadership
WIPO	World Intellectual Property Organisation
WITS	University of the Witwatersrand
WRC	Water Research Council
WSU	Walter Sisulu University
Xsit	X Sterile Insect Technique (Pty) Ltd
YEI	Youth Enterprise Initiative
YTD	Year to Date
YTIF	Youth Technology Innovation Fund (that became YTIP)
YTIP	Youth Technology Innovation Programme (of TIA)
ZrCl4	Zircon

technology innovation
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