



THENSA

Technological Higher Education Network South Africa

ANNUAL REPORT

2021



Institutions

Members:



CPUT - Cape Peninsula University of Technology



CUT - Central University of Technology, Free State



DUT - Durban University of Technology



MUT - Mangosuthu University of Technology



TUT - Tshwane University of Technology



VUT - Vaal University of Technology



UMP - University of Mpumalanga



WSU - Walter Sisulu University



UNIVEN - University of Venda

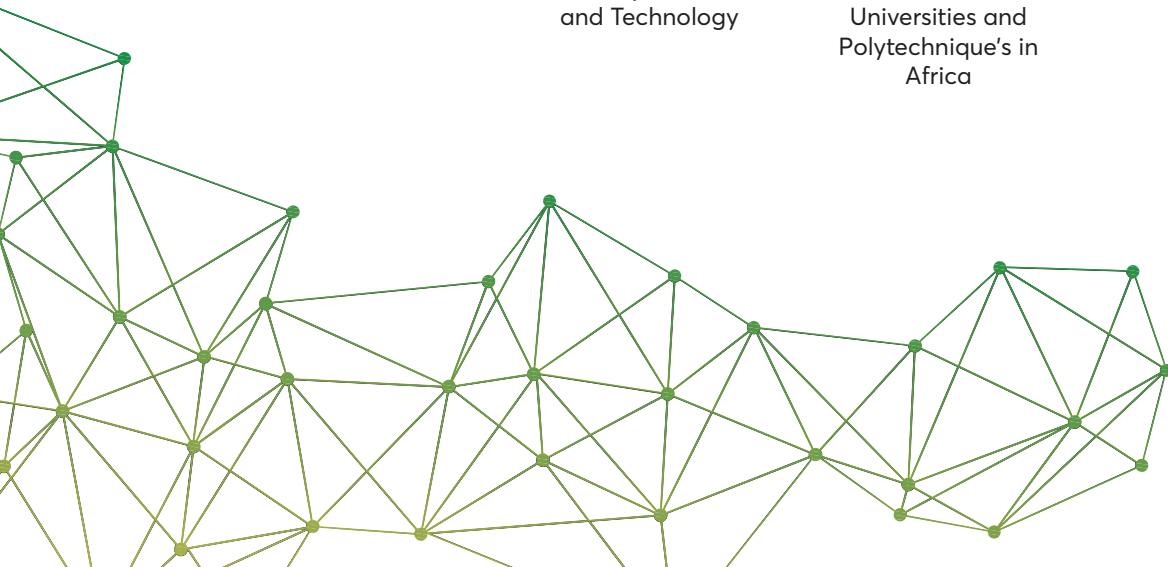
Associate Members:



NUST - Namibia University of Science and Technology



ATUPA - Association of Technical Universities and Polytechnics in Africa



Acronyms

ATUPA	Association of Technical Universities and Polytechnique's in Africa
CPUT :	Cape Peninsula University of Technology
CUT :	Central University of Technology
DEA :	Department of Environmental Affairs
DHET :	Department of Higher Education and Training
DUT :	Durban University of Technology
EU:	European Union
E-WASA :	E-Waste Association of South Africa
EWSETA :	Energy and Water Sector Education & Training Authority
NRF:	National Research Foundation
GMIT	Galway-Mayo Institute of Technology
HEMIS	Higher Education Management Information System
HERE:	Higher Education Reform Experts
HERESA:	Higher Education Reform Experts South Africa
MUT :	Mangosuthu University of Technology
NQF :	National Qualifications Framework
NIPMO:	National Intellectual Property Management Office
NUST:	Namibia University of Science and Technology
PI :	Performance Indicator
QCTO :	Quality Council for Trades and Occupation
RIEC :	Research, Innovation and Enterprise Committee
RISG:	Research and Innovation Strategy Group
SARChI	South African Research Chairs Initiative
SASCE :	South African Society for Cooperative Education
SATN :	South African Technology Network
SAQA :	South African Qualifications Authority
SETA :	Sector Education and Training Authority
THEA:	Technological Higher Education Association Ireland
THENSA :	Technological Higher Education Network South Africa
TIA :	Technology Innovation Agency
TUT :	Tshwane University of Technology
UIF:	Unemployment Insurance Fund
UMP :	University of Mpumalanga
UNIVEN:	University of Venda
USAf:	Universities South Africa
VUT :	Vaal University of Technology
WACE :	World Association for Cooperative Education
WIL :	Work Integrated Learning
WSG:	World of Work Strategy Group
WSU :	Walter Sisulu University



The Technological Higher Education Network South Africa (THENSA) is recognised as a vibrant, innovative consortium for advancing technology-focussed institutions with a transformative societal impact.

Table of Contents

Chairperson's Message

CEO Message

1. THENSA 2021

Vision, Mission, and Strategic Goals

2. Governance

3. Strategic Task Teams

Performance Indicator Task Team

4. THENSA Partnerships and Special Projects

4.1 Partnership with Department of Higher Education and Training

4.2 Work Integrated Learning South Africa (WILSA)

4.3 Partnership with the Irish Technological Higher Education

Association and the Irish Embassy

4.4 Partnership with the Department of Labour and the UIF

4.5 THENSA Graduate Employability APP – Partnership with TIA

4.6 Partnership with the European Union - Higher Education

Reform Experts (HERE)

4.7 University Industry Partnerships

4.8 Partnership in Africa and Beyond

5. Conclusion

6. THENSA Secretariat

7. THENSA Financial Statements



CHAIRPERSON'S MESSAGE



Prof LR van Staden

Vice-Chancellor and Principal: Tshwane University of Technology (TUT)

Chairperson:

South African Technology Network (THENSA)

This annual report reflects how our sector has navigated the challenges we have faced during 2021, and at the same time it features the highlights of the year in terms of projects and collaborative achievements.

Whilst there are signs that we are beginning to emerge from the worst impacts of Covid-19, we are cautious that the pandemic is not yet over. This was another year in which the unprecedented level of online vs face-to-face teaching, digital, pedagogical, research, and other related activities were most challenged for mainly staff and students.

Through the forging and strengthening of partnerships and collaborations across the country and globally, THENSA was able to nevertheless deliver on its vision and strategy for joint research, innovation and continued to play a leading role in the economy of South Africa.

Despite a restricted and cautious COVID environment, we have continued with our core focus which is to sustain and improve our leading reputation for innovative research and embrace the technological changes that will contribute to skilled and resilient graduates. We want to ensure that sustainability permeates all that we do.

These commitments have ensured the positive outcomes of THENSA's programmes and activities with the support and collaboration of its key strategic partners as you will be informed in the Annual Report.

I wish to acknowledge our CEO, Dr Anshu Padayachee for her focused and impactful leadership during a time of significant change. I would also like to commend our Operations Manager, Ms Christelle Venter for her dedicated and efficient management of all our operations.

CEO MESSAGE



Dr Anshu Padayachee

Chief Executive Officer

2020 has been a year like no other and I am incredibly proud of how the newly launched THENSA swiftly responded to a global pandemic. Guided by our vision, our organisation demonstrated the ability to continually adapt in order to serve our important members and communities safely and efficiently.

The THENSA model has continuously proven its strength, even in the face of uncertainty. As we celebrated our new name, we also quickly pivoted to a virtual service delivery model that accelerated our 2020-2025 strategic mandate for the future, all while branding and expanding nationally.

Fuelled by the global health crisis, THENSA reached a major new milestone, delivering new programmes and initiatives to all our member institutions and our strategic partners. 2020 may have brought challenges, but it also showcased THENSA and its vibrant and dedicated programme teams' ability to execute. By moving most of the residential programmes to virtual platforms, we were able to significantly expand our programmes across the country, the continent and globally. THENSA continues to work tirelessly to build a world where all can thrive. Together, our dedicated and talented staff continually proved their commitment and professionalism during a time of significant change.

Thanks to our Board of Directors, Funders, Donors, and Partners for their tireless support in the work we do. We entered 2021 with deep partner relationships, a strong and growing brand, and a strategically well positioned organisation ready for new opportunities. THENSA did not just reimagine its service delivery, it fast tracked its ambitious strategic 2020-2025 plan in just a few months. Our incredibly professional staff helped to accelerate the development of a suite of virtual services and programmes to better serve our member institutions while ensuring the safety of our staff, members, and partners. A special word of thanks to Ms Christelle Venter (Operations Manager) and Ms Kogie Pretorius (Project Manager) who worked tirelessly in assisting me in putting together this annual report.

Importantly, I would like to thank our Board of Directors who remain committed and dedicated to the best practices of governance and to the mission and vision of this significant and important organisation.










We are pleased to report that THENSA is in a strong position to ensure financial sustainability. The future of this organisation is bright as it continues with its important work to create a successful South Africa. Guided by our strategic priorities – branding and expanding nationally – this Annual Report highlights the programmes and initiatives that showcase the areas in which we made significant progress during a national health and economic crisis.

1. THENSA 2021



Following a comprehensive review of our work, and as an expression of our responsiveness to sectoral changes, changes in policy, curriculum, and innovation agendas in the South African higher education sector, the SATN Board began the process of repositioning itself as Technological Higher Education Network South Africa (THENSA) on the 1 January 2021. A further impetus emanated from calls by President Cyril Ramaphosa and Higher Education, Science and Technology Minister Blade Nzimande, who implored the Higher Education sector to focus on science and technology to meet the challenges of the Fourth Industrial Revolution. THENSA continued to align its work with targets set by the South African government's National Development Plan, the United Nation's Sustainable Development Goals, and the Africa 2063 Agenda, while continuing its strong partnerships with business and industry.

The various programmes coordinated by THENSA and the joint strengths of its member institutions, contributed significantly to the research, knowledge, technology, and leadership requirements that South Africa needed during this unprecedented crisis.

Members:

- | | |
|---|--|
|  Cape Peninsula University of Technology (CPUT) |  Tshwane University of Technology (TUT) |
|  Central University of Technology, Free State (CUT) |  Vaal University of Technology (VUT) |
|  Durban University of Technology (DUT) |  University of Mpumalanga (UMP) |
|  Mangosuthu University of Technology (MUT) |  Walter Sisulu University (WSU) |
| |  University of Venda (UNIVEN) |

Associate Members:

-  Namibia University of Science and Technology (NUST)
-  Association of Technical Universities and Polytechnics in Africa (ATUPA)





1.1 VISION, MISSION, AND STRATEGIC GOALS FOR 2021

VISION GOALS FOR 2021

THENSA will be recognised as a vibrant, innovative consortium for advancing technology-focused institutions with a transformative societal impact.

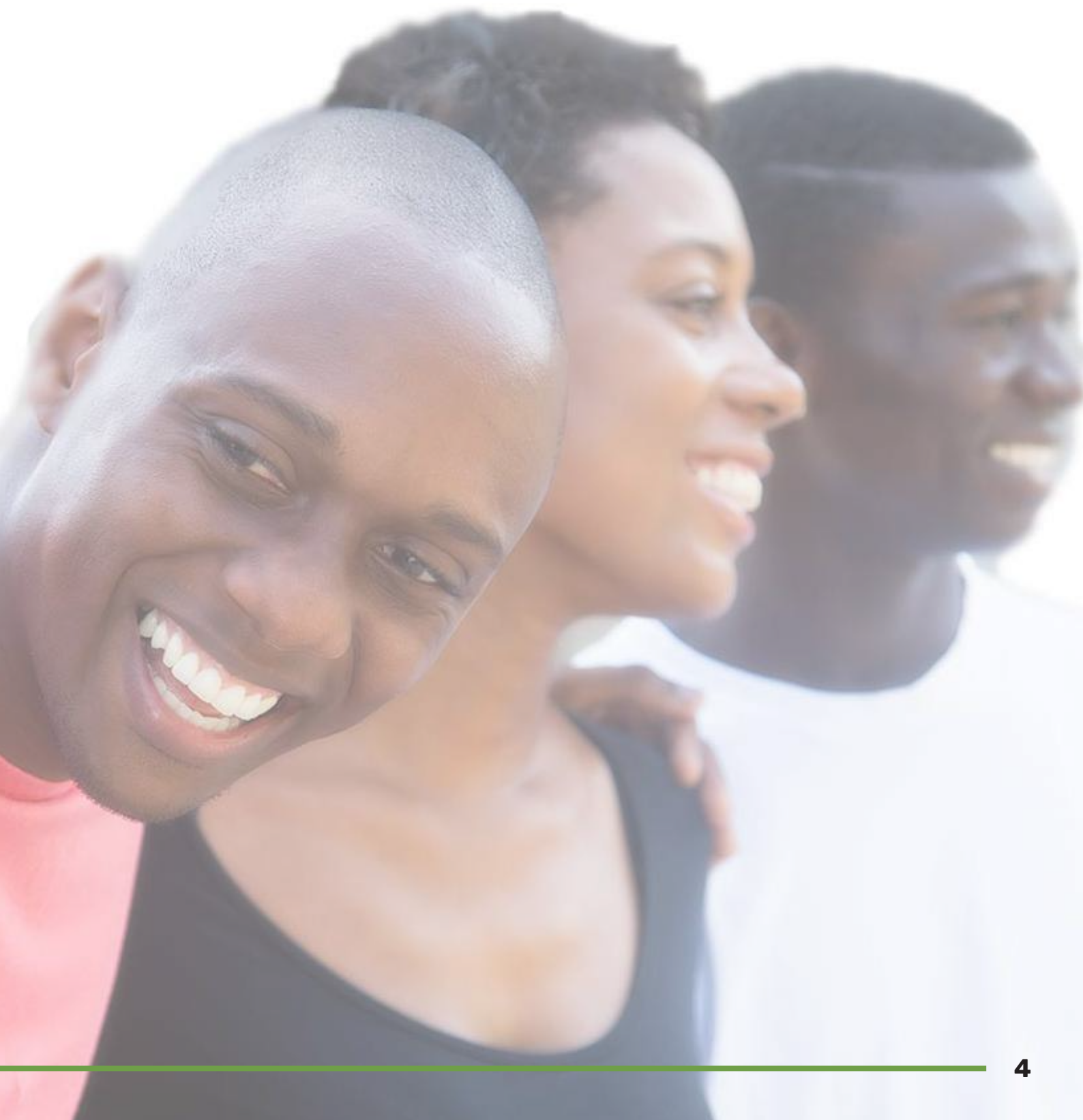
MISSION

THENSA's mission is to facilitate:

-  Leadership, advocacy and best practice amongst its members and stakeholders.
-  Quality education to support globally competitive, future-ready graduates and entrepreneurs.
-  Impactful research and innovation toward sustainable societies; and
-  The expansion of a national and global innovation ecosystem.

STRATEGIC GOALS

- 🌀 To provide transformative leadership and promote best practice.
- 🌀 To act as an advocacy and lobbying agency for the consortium.
- 🌀 To be a positive catalyst for sustainable socio-economic development.
- 🌀 To promote and enable impactful real-world research and innovation.
- 🌀 To mobilise mutually beneficial national and international education, government, business and industry ecosystems and networks.
- 🌀 To promote quality, technology-based education, and training for the world of work.
- 🌀 To increase membership and funding sources to ensure sustainability of THENSA



2. GOVERNANCE

The Board of Directors of THENSA comprises of nine Vice Chancellors of Technology Focussed Universities. As custodians of the Network, the Board has in place mechanisms to ensure sufficient oversight of the organisation's controls and functioning. The Board held three online meetings during the year to discuss, debate and evaluate its objectives, the programmes that it offered to member Institutions and the various new initiatives that it had to consider.

The Annual Report of THENSA demonstrates the Network's contribution in guiding and supporting the future of technology focussed member universities.



Prof LR van Staden
Chairperson
Vice-Chancellor: Tshwane
University of Technology (TUT)



Prof A Ngowi
Acting Vice-Chancellor
Central University of Technology
(CUT) (Prof HJ de Jager until 30
September 2021)



Prof TZ Mthembu
Vice-Chancellor:
Durban University of Technology
(DUT)



Prof NS Nhlapo
Vice-Chancellor:
Cape Peninsula University of
Technology (CPUT)



Prof M Linington
Acting Vice-Chancellor
Vaal University of Technology (VUT)
(Prof I Rensburg until 15 August 2021)



Prof M Ramogale
Acting Vice-Chancellor
Mangosuthu University of
Technology (MUT)



Prof R Songca
Vice-Chancellor
Walter Sisulu University (WSU)
(Prof J R Midgley until 31 March 2021)



Prof TV Mayekiso
Vice-Chancellor
University of Mpumalanga (UMP)

Associate Member:



Dr B N Nthambeleni
Vice-Chancellor
University of Venda (UNIVEN)



Dr E Naomab
Vice-Chancellor
Namibia University Science and
Technology (NUST)

3. STRATEGIC TASK TEAMS

Although the pandemic had a huge impact on collaborative activities sector wide, the work of the Strategic Task Teams continued under the auspices of USAf. It will be recalled that the decision to merge our task team activities with USAf was taken early in 2020 so as to deal with the challenges of COVID collectively. Hence, the most important task team for THENSA, the PI Task team continued its work to identify areas of special focus for the THENSA Network.

PERFORMANCE INDICATOR TASK TEAM (PI)

The PI Task Team compiles an Annual Performance Indicators Profile for the sector. This Task Team provides members of THENSA with an annual measure of student success, as it is based on the number of subjects that students enrol for and pass in a particular year, research and innovation outputs, staffing demography etc.

The data provides institutions with information requiring special attention. These reports are based on audited institutional data as submitted to DHET's Higher Education Management Information System (HEMIS). This edition of the Profile ([available on request from THENSA](#)) includes data for the year 2019. The graphs typically show trends for the five-year period, 2015 to 2019.

The PI Report also identified activities for consideration by THENSA.

4. THENSA PARTNERSHIPS AND SPECIAL PROJECTS

Despite the pandemic having a large impact on collaborative activities, THENSA overcame the restrictions and limitations and provided committed support to its research teams, project coordinators, stakeholders, facilitators, and participants for the various special projects. In particular, THENSA continued with its focus on the importance of capacity development programmes for its member institutions through strategic and collaborative partnerships as well as its international collaborative research cluster activities.

4.1 PARTNERSHIP WITH DHET - CAPACITY DEVELOPMENT PROGRAMMES FOR STAFF

South Africa's inability to produce enough doctoral graduates to build the 'knowledge economy' it aspires to or simply to replace the existing cohort of academics in the higher education system, is a challenge widely acknowledged by government departments, their agencies and universities. Mouton (2010) maintained that rectifying the problem is a bigger challenge. It is widely acknowledged that South Africa is in dire need of a critical mass of scientists and researchers not only to be part of the competitive knowledge society but also because we need doctoral graduates to train the next generation of academics.

The Department of Higher Education and Training (DHET), the National Research Foundation (NRF), other funding agencies and science councils have all reflected the significance of accelerating the development of a critical mass of post graduate students by reviewing the national funding framework for higher education, and funding and launching several new programmes to meet this need. In the current funding framework doctoral graduates are weighted such that this indicator has a considerable impact on an institution's research output subsidy.

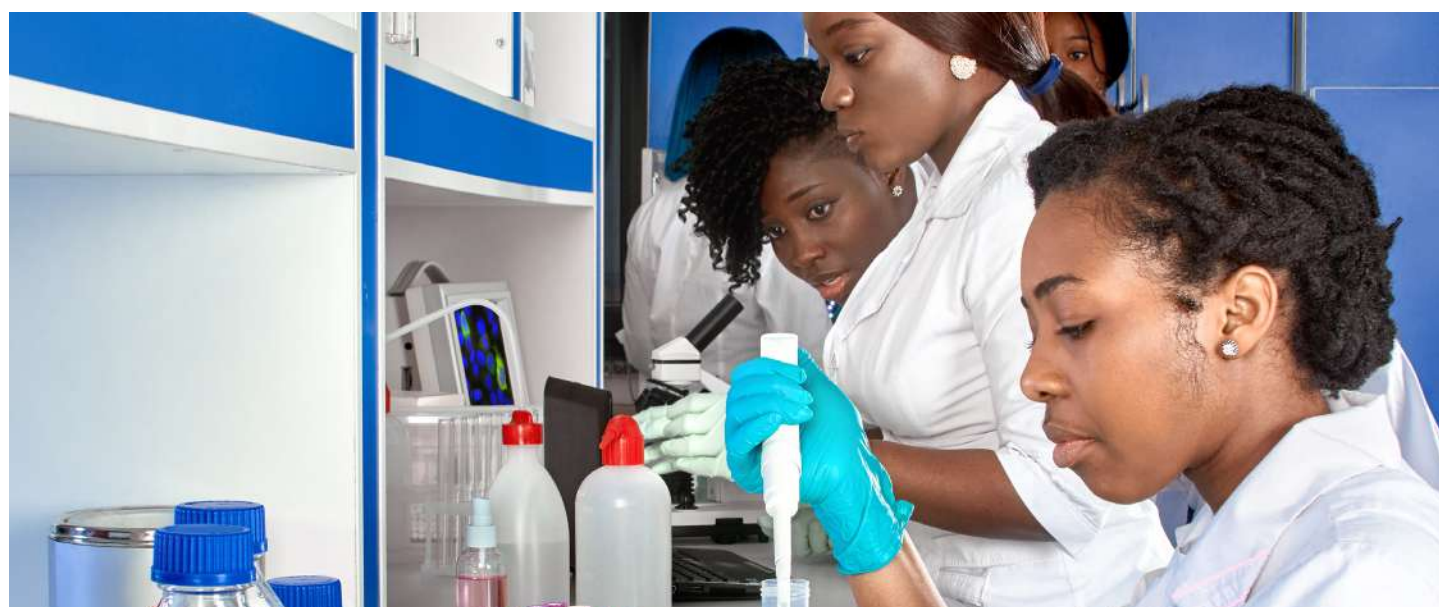
The THENSA performance Indicator Document also highlighted this need to ensure that Staff at UoTs and PDIs in particular, will be able to meet the target of having 70% of staff with PhDs by 2030.

THENSA received a grant from DHET to offer its bespoke Cohort Model PhD programme. 47 staff members from UoTs and PDI's were registered for the PhD Programme by the end of 2019.

THENSA continuously monitors the candidate progress with monthly progress reports from each of the 47 candidates. Their progress and their activities are supported by THENSA's professional team of supervisors, facilitators, and panel of experts. The candidates have indicated the probability of submissions of their PhD thesis for examination as listed in the table below.

Institution	Estimated Submission Dates	
	2022 Submission	2023 Submission
Cape Peninsula University of Technology	1	3
Central University of Technology	2	1
Durban University of Technology	1	8
Mangosuthu University of Technology	2	2
Tshwane University of Technology	3	6
University of Fort Hare	2	-
University of Venda	2	1
University of Zululand	4	1
University of the Western Cape	-	2
Vaal University of Technology	1	-
Walter Sisulu University	2	3
TOTALS	20	27

While the pandemic has halted most travel opportunities, THENSA has remained in contact with international institutions, who will play host to the cohort of students as part of their one-month abroad mobility grant and keep them informed on the progress of the cohort.





4.2 WORK INTEGRATED LEARNING SOUTH AFRICA (WILSA)

Technology-focussed Universities have for developmental and purely educational reasons, placed increased emphasis on the need to integrate Work Integrated Learning (WIL) into their curricula and teaching and learning strategies. It is for this reason that THENSA has over the last five years invested considerable financial and human resources in implementing a number of initiatives to capacitate its member institutions in WIL, both in terms of its study and practice. After consultation with its member Institutions, THENSA Board agreed to the establishment of WILSA. Below are the related WIL activities of THENSA, which contribute and support the work of WILSA:

- 🌀 A HERESA (Higher Education Reform Experts-SA) WIL Expert group in partnership with six EU partners
- 🌀 The WIL Research (SARCHI Chair) established at CPUT
- 🌀 Representation of THENSA members on the USAf World of Work Strategy Group

Aim of WILSA

The aim of WILSA is to promote research, training capacity building and practice of WIL in the country and the continent through the following:

- 🌀 Bringing networks of excellence together for benchmarking and strategic intervention design and implementation – to benefit the sector.
- 🌀 Evaluating and designing WIL curricula that is fit for purpose through applied research.
- 🌀 Tapping into existing expertise and platforms locally and internationally to benefit members and the broader sector, and to gain international recognition.
- 🌀 Informing WIL policy design and driving implementation on the development and application of WIL as an effective pedagogy.
- 🌀 Designing, facilitating, and gaining access for members to WIL training.
- 🌀 As a member of the World Association for Cooperative and Work Integrated Education (WACE), THENSA will extend the benefits of WIL to other higher education and industry sectors who will benefit from its innate values.
- 🌀 Establishment of a Professional Board for WIL Coordinators and Directors.

The official launch of WILSA is scheduled to take place at the THENSA International Conference scheduled for March 2022.

4.3 PARTNERSHIP WITH THE IRISH TECHNOLOGICAL HIGHER EDUCATION ASSOCIATION (THEA) AND THE IRISH EMBASSY

The signing of the MOU between THENSA and THEA mapped the way for the development of collaborative research clusters and programmes of mutual interest, inter alia, tourism, entrepreneurship education, space science, food security, work integrated learning, promotion of staff and student exchanges, identification, application, and submission of joint funding through this partnership.

4.3.1 RESEARCH CLUSTERS

The research clusters programme is generously funded by the Irish Embassy in South Africa.

A total of nine THENSA member institutions and five Irish Higher Education institutions participated in the Research Colloquium, involving approximately 80 participants, in October 2019 in Durban. The Colloquium served to identify the potential and strategic areas for collaborative research and human capacity development within the technology sector. The overall aim is to **strengthen existing research competence and build new research competence by facilitating research co-operation and partnerships between South African and Irish Universities/Institutes of Technology.**

The specific recommendations emerging from the Colloquium included the following:

- ⑥ Establish institutional hubs (based on existing infrastructure and capacity) that will host the six research clusters and be responsible for facilitating the research projects that emerge within each thematic area.
- ⑥ Submit the research proposals developed by the six research clusters to the NRF for co-funding and request that participating institutions allocate funds from their UCDP/DHET/research development grants to support researchers from their respective institutions to participate in these collaborative projects.
- ⑥ Source funding for travel grants for approximately 3 persons from each research cluster to attend the follow-up Colloquium to be held in Ireland.
- ⑥ Submit a proposal to the Irish embassy for travel grants for South African participants to attend the follow up Colloquium.
- ⑥ Source local and international funding (mobility and research) for students (MSc and PhD) associated with projects run by the research clusters.

Since 2020 this programme has been severely affected by the pandemic in that all activities involving mobility had to be put on hold. Nevertheless, all clusters have provided evidence of active engagement and significant progress – see table below:



RESEARCH CLUSTER	PARTICIPATING INSTITUTIONS	OUTPUTS
SPACE SCIENCE, INNOVATION HUBS AND ICT P1. The use of unmanned aerial vehicles in the management of catchments P2. Development of Industry 4.0 technologies for deployment in space with a special focus on AI and Cybersecurity	<ul style="list-style-type: none"> • Cape Peninsula University of Technology • Cork Institute of Technology • Institute of Natural Resources NPC • Mangosuthu University of Technology • South African Radio Astronomy Observatory • Tshwane University of Technology • Vaal University of Technology • Walter Sisulu University • Waterford Institute of Technology 	<ul style="list-style-type: none"> • Joint presentation at AfAS Session at the AERAP Virtual Conference: Data and Development Partnerships for Africa-EU in Astronomy. • Feasibility study on use of drones for catchment management completed. • Drone flights completed at sites for water quality study initiated • Briefing meeting on project held between SA and Irish partners.
BIOMEDICAL ENGINEERING, ROBOTICS AND ADVANCED MANUFACTURING P1. The use of Additive Manufacturing to support COVID-Related Rapid Response	<ul style="list-style-type: none"> • Cape Peninsula University of Technology • Central University of Technology • Cork Institute of Technology • Galway-Mayo Institute of Technology • Mangosuthu University of Technology • Technological University Dublin • Tshwane University of Technology • University of Zululand • Walter Sisulu University • Waterford Institute of Technology 	<ul style="list-style-type: none"> • A and Irish partners developed project proposal on rapid prototyping response to COVID19 manufacturing needs. • SA partners received a number of excellent grants; these will be used to fund some of the collaborative work with Irish partners.
WIL, INDUSTRY PARTNERSHIPS, APPRENTICESHIPS AND CURRICULUM FOR THE 4IR P1. Enhancing work-integrated learning through South-North collaboration: a comparative analysis P2. Strand 4 Irish Research Council Project (IN PROGRESS)	<ul style="list-style-type: none"> • Cape Peninsula University of Technology • Central University of Technology • Cork Institute of Technology • Durban University of Technology • Galway-Mayo Institute of Technology • Limerick Institute of Technology • Mangosuthu University of Technology • Namibia University of Science and Technology • South African Qualifications Authority • Technological University Dublin • Tshwane University of Technology • University of Zululand • Vaal University of Technology • Walter Sisulu University • Waterford Institute of Technology 	<ul style="list-style-type: none"> • Strengthen new THENSA partnerships through collaboration and networking activities in Ireland and South Africa. • Explore current WIL management models, practices and policy with in Ireland and South Africa to fully understand the context and challenges associated with the implementation of WIL within Higher Education Institutions and Industry • Co-develop new best practice guidelines, models, and frameworks (including policy) for WIL and WIL Partnerships. • Co-author a journal paper <p>P1.</p> <ul style="list-style-type: none"> • Journal article submitted to the International Journal of Work-Integrated Learning ("Enhancing work-integrated learning through South-North collaboration: a comparative analysis") and the South African Journal of Science. • Research grant for travel obtained, but on hold due to current travel restrictions <p>P2:</p> <ul style="list-style-type: none"> • Travel grant secured to travel to SA for partnership development • Cluster currently designing survey instrument to reflect/ capture resilience of WIL during pandemic • Cluster conceptualised and pitched proposal for establishment of WIL-SA • A survey will be distributed from mid-November 2021 to January 2022.



RESEARCH CLUSTER	PARTICIPATING INSTITUTIONS	OUTPUTS
WASTE MANAGEMENT AND THE CIRCULAR ECONOMY P1. Development of biobased plastics P2. Developing strategies for mitigating dairy wastewater impact	<ul style="list-style-type: none"> • Cape Peninsula University of Technology • Central University of Technology • Durban University of Technology • Limerick Institute of Technology • Mangosuthu University of Technology • Tshwane University of Technology • University of KwaZulu-Natal • University of Zululand • Vaal University of Technology • Walter Sisulu University 	P1: Funding grants obtained from the South African National Research Foundation (2021-2023); Water Joint Programming Initiative (2018-2020); SA NRF Knowledge Fields Development grant (for workshop) and the Council for Scientific and Industrial Research Waste RDI Roadmap grant (2021-2022) P2: Publications in preparation for the Science of the Total Environment; South African Journal of Science; Joint study between LIT, INR and THENSA on dairy farm waste management and the South African Journal of Science
AGRICULTURE AND FOOD SECURITY P1. A review of challenges and opportunities of agriculture and food security in the 4IR: A North-South perspective P2. Drought Early Warning System using Geospatial Techniques	<ul style="list-style-type: none"> • Central University of Technology • Cork Institute of Technology • Institute of Natural Resources NPC • Mangosuthu University of Technology • Technological University Dublin • Tshwane University of Technology • University of KwaZulu-Natal • University of Zululand • Walter Sisulu University • Waterford Institute of Technology 	P1. Article submitted to journal P2: Grant proposal under preparation
COVID 19 PANDEMIC P1. Priority setting for interventions in pre- and post- pandemic: A South Africa-Ireland comparison	<ul style="list-style-type: none"> • African Centre for the Constructive Resolution of Disputes • Central University of Technology • Institute of Natural Resources NPC • South African Technology Network • Thorntree Coaching, Facilitation and Mentoring • UN High Commissioner for Human Rights • University of KwaZulu-Natal • University of Pretoria • University of the Witwatersrand 	P1. <ul style="list-style-type: none"> • Position paper produced by the South African team • Radio and television interviews by the South African team on local stations • Articles published in the South African Medical Association Newsletter

4.3.2 ONLINE ENTREPRENEURSHIP PROGRAMME

The 8-week Online Entrepreneurship Programme was developed by THENSA in partnership with the Hicks Centre for Entrepreneurship Excellence, at Munster Technological University, Ireland. The THENSA Learning Management System via the technology platform Telegram Messenger is used to present the online programme. This messenger-based platform provides the link for lecturers and learners to interact around content within a structured delivery framework, serving as a communication channel, with zero messaging costs.

The Pilot Online Entrepreneurship Programme was officially launched to 50+ learners on 27th October 2021 at DUT. At the launch were esteemed guests, DUT Vice-Chancellor and Principal, Prof Thandwa Zizwe Mthembu, Irish Ambassador to South Africa and key funder of the programme, Ms Fionnuala Gilsean, the DUT Deputy Vice-Chancellor: Research, Innovation and Engagement, Prof Sibusiso Moyo, Director of Technology, Transfer and Innovation at DUT, Professor Keolebogile Motaung, THENSA CEO, Dr Anshu Padayachee and her staff, Research Fellow in Entrepreneurship at MTU, Dr Naill O'Leary and Solutions Architect and Mr Willie Cloete.

In a recorded message **DUT Vice-Chancellor and Principal, Prof Thandwa Zizwe Mthembu** welcomed the announcement of this important partnership within MUT and THENSA that will benefit 51 DUT students. He added that - 'we need our young people to be viewed with the entrepreneurial mindset and to be equipped with high level entrepreneurial skills, the programme is unique and invaluable, especially in the context of the COVID19 era and is designed to be practical and impactful. He further added that recent developments in the Fourth Industrial Revolution suggest employment will shrink, businesses and industries that have always provided jobs has shrunk if not gone under, careers that have always been attractive and lucrative have lost their shine, if ever there are still jobs available in those careers'.

Irish Ambassador to South Africa, Ms Fionnuala Gilsean and key funder of the programme, commended THENSA for devising this programme. She said she is delighted that MTU is partnering with THENSA in developing this programme. There is huge potential of partnerships between Irish and South African universities and we as the Embassy of Ireland are very keen to support such partnerships and exchanges between our universities.

CEO of THENSA, Dr Anshu Padayachee highlighted the rationale for the online programme which is to reach the far-flung areas of our country. This is a benefit for all THENSA member universities in the country and through their community engagement programmes, universities will also empower their own communities.

Research Fellow in Entrepreneurship at MTU, Dr Naill O'Leary said their task was to deliver comparable online mobile accessible entrepreneurship course during the COVID19 pandemic. He said the course structure consists of definitions and generating ideas, Business Model Canvas, idea assessment and research, hiring-conscientious and leadership, learning to learn, presenting research, deciding and the next steps. He assured students that the programme is taking the innovative evidence-based approach and it is very rewarding. He thanked the THENSA Team and the model learners for their work on the programme.

Students participating in the programme, **Zenani Dlamini and Ben Ngaleka** expressed their appreciation for being given the opportunity to be amongst the first group to participate in this programme and were confident that the course will help them improve their businesses.

DUT DVC for Research, Innovation and Engagement, Prof Sibusiso Moyo, extended her gratitude to THENSA and Prof Keolebogile Motaung for supporting the students and staff in innovation and entrepreneurship.



Pictured: Prof Keolebogile Motaung, TTI Director at DUT and DUT's DVC: RIE, Prof Sibusiso Moyo along with the participants of the THENSA Online Entrepreneurship Programme.

4.3.3 TOURISM EDUCATION, RESEARCH AND TRAINING: A POST COVID19 INITIATIVE

THENSA was awarded a grant by the Irish Embassy thus enabling the sector to work closely with the Tourism Industry, Government, and member Institutions and to establish a Tourism Education, Research and Training Research Cluster and ultimately a Tourism Gateway Platform. Through this intervention and the related programmes, THENSA aims to address the areas that the tourism sector needs to focus on to develop turnaround strategies that will secure socioeconomic development.

The THENSA-THEA partnership has to date had several planning meetings with the relevant authorities and stakeholders and have identified the following key points of departure:

- 🌀 Collaboration will be beneficial for South Africa and Ireland through sharing of the research, innovation, curricula, teaching practices and experiences of our respective Institutions
- 🌀 Create a tourism discussion portal/ platform to enable all interested stakeholders (academics, students, industry, organisations public and private etc.) to participate and share knowledge on issues of critical importance
- 🌀 Review and revisit policies and practices together with stakeholders to address the challenges presented Post COVID19 pandemic.
- 🌀 Share best practices from both countries as to demonstrate how higher education stakeholders have embraced curriculum change and delivery methodologies because of the pandemic.

An International Virtual Inception Meeting was held on **15 March 2021** and was well attended by THENSA member institutions, the Irish Ambassador, and staff in South Africa, the South African Ambassador and staff in Ireland, South African National Parks, and South African Tourism.

The current state of tourism in South Africa and Ireland was presented by the expert researchers, respectively and the following key training challenges were identified:

- 🌀 A comprehensive audit of training needs to be done in South Africa (current training and qualifications, if any)
- 🌀 Assessment/review of tourism and hospitality education (including programme structures, curricula/ content, trainer competencies and efficiencies, completion rates, impacts, etc.), including tracer studies of graduates
- 🌀 Database and knowledge management of sector stakeholders and training providers
- 🌀 Addressing disparities in training in relation to which groups are targeted, access to funding and opportunities, etc.
- 🌀 Capabilities to respond to demand in relation to training needs
- 🌀 Number and effectiveness of training programmes (including 'train the trainers' programmes)
- 🌀 Training, upskilling, and reskilling
- 🌀 Private sector support for training

A follow-up meeting was held in **November 2021** and was attended by THENSA and its strategic tourism partners'. During this meeting, there was discussion on the planned visit to GMIT to engage in the draft Implementation Plan and alignment to the Irish Tourism Education Gateway (TEG) platform which will potentially serve as a global resource and platform that hosts tourism training resources.

Unfortunately, the planned visit to Ireland was postponed to early 2022 due to the rising COVID19 numbers.



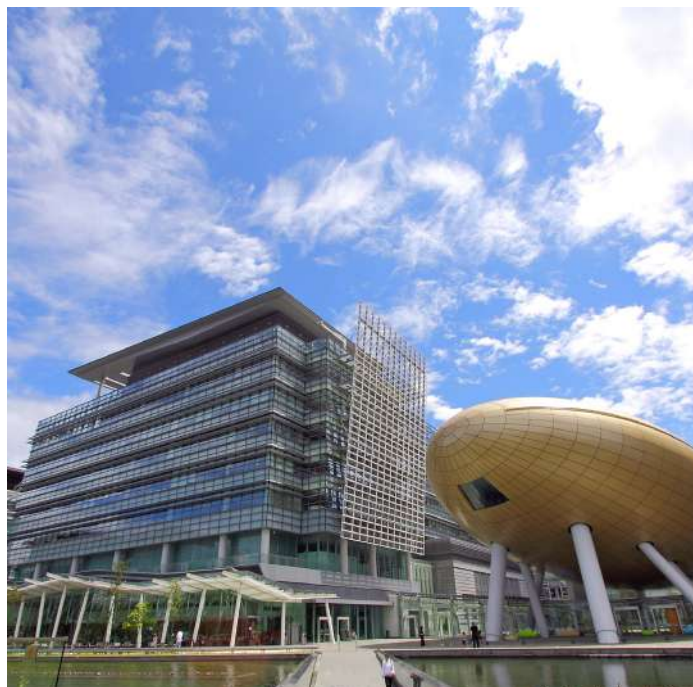
4.3.4 SCIENCE PARKS : BUSINESS UNITS PARTNERSHIPS

It is widely acknowledged that science and technology parks are the ideal ecosystems to facilitate multi-inter and transdisciplinary engagement in the global knowledge economy. Science & technology parks internationally have demonstrated how such facilities can promote the economic development and competitiveness of regions and cities by:

- 🌀 Creating new business opportunities and adding value to mature companies
- 🌀 Fostering entrepreneurship and incubating new innovative companies
- 🌀 Generating knowledge-based jobs
- 🌀 Building attractive spaces for emerging knowledge workers - Enhancing the synergy between universities and companies .
- 🌀 Facilitating the pipeline from knowledge to concept and enterprise and finally socio-economic development in ground-breaking and contemporary innovations such as the 4IR, the circular economy and climate change.

THENSA's goal to establish a Consortium of Science and Technology Parks of member institutions to build regional innovation systems near universities, promote the technological intensification of the economy, a more effective knowledge transfer and sharing and the construction of competitive advantages has commenced with the commission of an environmental scan of activities at Science Parks Business Units of its member institutions.

The outcome is to ultimately facilitate a strategy for the coordinated and joint activities of its member universities to enable activities such as joint funding submissions, collaboration on projects and streamlining of services. Institutional engagements will commence in 2022.



4.3.5 TEACHER EDUCATION PROGRAMME

In highlighting the need for university lecturers to be equipped with a professional teaching qualification in higher education to promote effective learning at universities, THENSA supported TUT's conceptual framework development of the PGDIP in Teacher Education, which is aligned with the Finnish Haaga-Helia programme. It was agreed that inputs from the Irish universities be considered.

A meeting was held on 20 September 2021 between THENSA, TUT and Irish Universities (GMIT and MTU) to explore new opportunities for international collaboration and benchmarking for teacher education and how both countries can partner for mutual benefit. THENSA will drive the process, engaging CHE and SAQA through a lead institution, and thereafter member institutions can submit this qualification to the DHET for PQM approval.

4.4 PARTNERSHIP WITH THE DEPARTMENT OF LABOUR AND THE UNEMPLOYMENT INSURANCE FUND (UIF)

During the First phase of the project, THENSA received a list of learners from UIF, which were recruited by the Department of Employment and Labour's Public Employment Services (PES) offices. From this list, 826 learners were enrolled for the theoretical training. During the Covid lockdown, training was stopped resulting in a 3-5 months' delay. In addition, most businesses were affected and despite this, 675 learners were successfully placed with host employers. THENSA has employed Placement Officers to ensure that learners are placed with employers after completion of their training.

The induction of 2400 learners for the **Second Phase of the project** commenced on 15 February 2021 and by 30 June 2021, a total of 1641 learners (Beauty & Nail Technology 535; Hairdressing 415; and Environmental Practice 691) were registered to be trained. 1641 learners completed their theoretical training. In addition, 759 learners were inducted and are waiting to be trained. The training is contingent on the extension of the Agreement between THENSA and the UIF. Notwithstanding these challenges, progress of the extension of the THENSA-UIF Project is being pursued with positivity.

4.5 THENSA GRADUATE EMPLOYABILITY APP

THENSA developed a Graduate Employability App (GEA) which is fully POPIA compliant and hugely beneficial to Universities and graduates. In developing this Application, THENSA ensured that its member institutions will benefit as follows:

- 🌀 Access to real time data of graduate's employability status (by discipline, year, gender, race etc); their work experience; Identify the relationship between the graduate qualification and the type of employment of the graduate; Timeframe it took for graduates to find employment; establish if their WIL experience in their qualification helped them with finding employment etc.
- 🌀 Feedback will assist with curriculum reform and review
- 🌀 Information on experts in industry who can be appointed as adjunct professors, to teach in specific discipline/s
- 🌀 Identify partnerships with business and industry

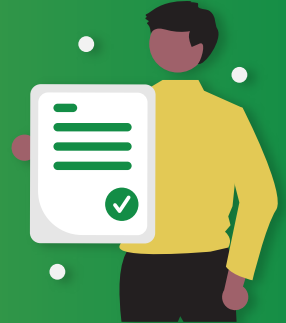
Benefits to Graduates

- 🌀 How to prepare a professional CV
- 🌀 How to prepare for an interview (face to face and online)
- 🌀 Establish a database of business and industry to give graduates opportunities to available jobs/employment.
- 🌀 Access to the THENSA online entrepreneurship programme which is SAQA aligned
- 🌀 Access to over 70 IBM courses
- 🌀 Automatic link to LinkedIn profile

THENSA ran a campaign to onboard industry prior to the other user roles, through LinkedIn & received industry applications of which some have been approved to be visible to the public & graduates. Phase 3 has also been developed and completed which allows access for universities, industry & adjunct professors. The GEA was successfully launched in 2021 with graduates signing in the programme from its member institutions.

GEA STRATEGY

Toward real time Graduate Employability Monitoring and Enhancement



PHASE 1

THENSA WEBSITE

Brand new THENSA website with groundwork for the implementation of the Graduate Employability Application.

PHASE 3

LEARNING MANAGEMENT SYSTEM

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod ad minim veniam, quis

PHASE 5

REALTIME EMPLOYABILITY MONITORING & ENHANCEMENT

The combination of components created from phase 1-4, and a deep integration with LinkedIn moves from manual to near real time employability performance monitoring.

PHASE 2

GRADUATE DATABASE

Graduate database and performance data via survey module. Career guidance, profile builder and basic LinkedIn integration to support the important networking strategy

PHASE 4

MEMBER DATABASES

Industry, university, and adjunct professor member databases for inclusion on the THENSA website as well as fundamental networking components between graduates and each of these entities.

PHASE 6

CONTINUOUS IMPROVEMENT

The vision for the GEA is to become a living and quality graduate and member platform to provide continuous support for existing employability strategies and ultimately taking graduate employability to new heights.

Now underway in 2022 is the Phase 4 development which addresses Real Time Employability Monitoring & Enhancement to enhance the functionality of the GEA. This additional module aims to enable real time reporting and tracking of Graduate Employability. As one of the primary objectives, this addition aims to provide real time feedback on the successes and failures of the various employability strategies. These results will then be shared with the relevant institutions to create a feedback loop that can further improve on the respective strategies, ultimately and continuously on the GEA. The GEA, in addition to the current Custom Performance Builder (Custom PI Builder), will allow access to real time reports resulting from scripts that track and collect employment data for all the graduate profiles that exist within the GEA (and LinkedIn) at any point in time.

Phase 5 will include the THENSA Online Entrepreneurship Programme for onboarded graduates who have registered with GEA. In addition, THENSA will work towards onboarding the PI Team from the member institutions to start with real-time reporting.

4.6 PARTNERSHIP WITH THE EUROPEAN UNION - HIGHER EDUCATION REFORM EXPERTS SA (HERESA)

After being awarded funding for this project from the EU as part of the Erasmus+ Capacity Building in Higher Education programme in November 2020, THENSA has worked with all six member institutions to implement the project. Major milestones to date include:

- 🌀 Partner agreements signed
- 🌀 Website and publicity deliverables achieved (<https://heresa.thensa.co.za/>)
- 🌀 Institutional appraisal report completed and released to all partners (see attached report)
- 🌀 Equipment purchases actioned
- 🌀 Four Communities of Practice established
- 🌀 HERE-SA Café (online platform for dialogues inspired learning for teachers) launched
- 🌀 Partner meeting held on 29 October 2021
- 🌀 Year 1 assessment passed by EU
- 🌀 Discussions with EU partners around next funding application.

A summarised progress across all the HERESA project is given below:



WORK PACKAGE 1 (PREPARATION): CONSOLIDATING THE HERESA AND GENERATING INSTITUTIONAL FEEDBACK

Appointed HERE SA and draft Terms of Reference

- Two-day briefing meeting held for South African partners on 25-26 Nov 2020
- EU Partner Briefing meeting held on 23 Dec 2021
- CHE released as a partner and replaced with SAQA after informing EU and acceptance of SAQA approved by all partners
- Official appointment letters issued to all founding members on 13 Jan 2021
- Terms of Reference signed

Conduct internal institutional consultations

- Working group (THENSA, CPUT and DUT) established on 25 Feb 2021
- Working group developed proposal and instruments for data collection on institutional capacities in relation to project's foci (Apr – Jun 2021)
- Working group submitted ethics application for institutional consultation study to DUT Research Ethic Committee and approved in July 2021
- Survey instruments subjected to external peer review (by 2 EU partners) and piloting in SA and survey instruments translated into online surveys in June 2021
- Surveys, focus group and group interviews completed at five institutions in June-July 2021

Produce consultation reports

- Data from institutional appraisal study analysed and report prepared during July-October 2021
- Report on institutional appraisal released to all partners and COPs (October 2021)

First SA HERE networking meeting was held on 29 October 2021

Report on institutional equipment needs in relation to teaching and learning and Equipment purchased

WORK PACKAGE 2 (PREPARATION): TRAINING PROGRAMME FOR HIGHER EDUCATION REFORM

Composition of the Training Programme (TP) and Project Training Team (PTT)

- Project Training Team (PTT) meeting established and commenced work
- Communities of Practice/Work Groups set to share resources and practices on the four core themes of the project. This will serve as an input to the PTT
- PTT conceptualised and rolled out "HERE-SA Café" (an online platform for short virtual discussions on topics related to training interests/needs) for COPs to facilitate dialogue inspired learning
- Finalise training programme for 2022
- Roll out first phase of training programme (WIL, CBL, Entrepreneurship and 4IR curricula)

Meetings

- First virtual meeting held on 6th June 2021
- PTT met on 13th August 2021 and 18th October 2021

Produce work plan for the training programme

- Draft programme and timeline for training was shared with partners via a conference call on 29th October 2021
- Finalised TP and shared with partners for approval

WORK PACKAGE 3 (DEVELOPMENT): INTERNATIONAL PRACTICE FOR HIGHER EDUCATION REFORM – EXECUTING THE TRAINING PROGRAMME

The TP a based on the findings of the institutional consultations by the PTT

- Roll out first phase of training in South Africa.
- Finalisation of approach to remaining two study visits.
- Holding first training events in South Africa has decreased the financial strain on partners.
- Organise one workshops in SA on leadership development
- Organise and deliver webinars - Based on the recommendations of the PTT, these webinars have now been adapted into online conversations that take place on the HERE-SA Café platform. These are a series of thematic conversations that involve all partners.

WORK PACKAGE 4 (DEVELOPMENT): NEW STRATEGIC APPROACHES FOR INNOVATIVE, ENTREPRENEURIAL TEACHING

- Strategy documents to be developed after Training programme
- Revise and approve strategies to follow
- Plans for CUT (local lead) to visit MTU (Irish partner) to compare local and Irish models for Innovation Hubs and university incubators
- Workshop on the role of incubators in entrepreneurship education is being organised

WORK PACKAGE 5 (DISSEMINATION & EXPLOITATION): IMPLEMENTING STRATEGIES: INSTITUTIONAL TECHNICAL ASSISTANCE

- Set up Technical Assistance Organisation Team
- Draft proposals for technical assistance activities
- Draft impact reports

WORK PACKAGE 6 (DISSEMINATION & EXPLOITATION): DISSEMINATION AND NATIONAL POLICY IMPACT

- SAQA joins HERESA officially to assist with aspects of project related to National Policy Impact on 01 Mar 2021
- Two meetings between HERESA and SAQA on 8 April 2021 and 11 Mar 2021
- Produce policy briefs
- Develop and maintain the project website and website launched on 29 October 21 (<https://heresa.thensa.co.za/>)
- Three articles on HERESA have been published on the THENSA website
- One television interview on a national radio station was secured
- Two articles on HERESA have been published in University World News

WORK PACKAGE 7 (QUALITY PLAN): QUALITY PLAN AND PROJECT MONITORING

- QMT established and commenced with developing QMP on 15 Apr 2021
- First quality monitoring exercise conducted on the partnership survey and reporting on deliverables
- ToR approved for external evaluation and conduct (mid-term and final)
- External evaluator is contracted by THENSA, and first virtual briefing meeting takes place between THENSA, OBREAL Global and evaluator

WORK PACKAGE 8 (MANAGEMENT): PROJECT MANAGEMENT AND OVERSIGHT





- Project reporting guidelines and templates finalised on 15 Feb 2021
- All Partnership Agreements signed
- On 25-26 Feb 2021 virtual meeting held with all local and EU partners
- Meeting held on 13 April 2021 to introduce working group model and conduct partner training on SLACK (communication platform selected for project)

Other activities related to new strategic approaches for innovative, entrepreneurial teaching and the implementation of strategies will follow in 2022.

4.7 UNIVERSITY INDUSTRY PARTNERSHIPS

THENSA continues to engage with business and industry role players to explore formal partnerships for the mutual benefit to business and member institutions.

Some of focus areas are:

-  Business Industry interest in participating in university adjunct academic programmes
-  Business Industry participation in joint and sponsored research
-  Business Industry participation in THENSA work integrated learning programme
-  Engagements on experiences, challenges and recommendations on curriculum and practical training of students.

Partnership with National Intellectual Property Management Office (NIPMO)

NIPMO is an initiative of the Department of Science and Technology, responsible for implementing the Intellectual Property Rights from Publicly Financed Research and Development Act (No. 51 of 2008) which makes provision that intellectual property emanating from publicly financed research and development is identified, protected, utilised, and commercialised.

Initial discussions on the various opportunities for THENSA and its member institutions was held with NIPMO in August 2021 and further discussions will be pursued in 2022, including the signing of an MOU.

4.8 PARTNERSHIP IN AFRICA AND BEYOND

THENSA's international collaborations have resulted in strategic engagements with role players inter alia, on the African Continent, Europe, Australasia, and the US.

THENSA continues its engagement with new partners to create opportunities for joint research, teaching and learning and staff student exchanges.

The Association of Technical Universities and Polytechnique's in Africa (ATUPA) joined THENSA as an Associate Member in 2021.

5. CONCLUSION

The year 2021 will again be remembered to be as challenging as never before. It was indeed a year of accelerated transition towards the different modes of teaching and learning, remote working and working online. To assist member universities with the enormous challenges they were faced with, THENSA was able to produce a level of stability in terms of its continued support on projects and collaborative initiatives. The THENSA Team has worked tirelessly to ensure that all the activities and projects continued despite the extraordinary circumstances and challenges.

We look forward to the time when we will, once again be able to engage face to face with our colleagues and partners and take advantage of the unrivalled opportunities through projects, events, and other mutual benefits for the sector.

6. THENSA SECRETARIAT



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Chief Executive Officer



Christelle Venter
Operations Manager

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Project Coordinator



Khanya Mtshali
Press and Media Relations



Moti H. Motshwane
Project Coordinator

7. THENSA FINANCIAL STATEMENTS

South African Technology Network Trust

(Registration number: IT913/08)

Annual Financial Statements for the year ended 31 December 2021

Statement of Financial Position as at 31 December 2021

Figures in Rand	Note(s)	2021	2020
Assets			
Non-Current Assets			
Property, plant and equipment	2	97,107	112,147
Intangible assets	3	-	6,810
		97,107	118,957
Current Assets			
Trade and other receivables	4	103,125,203	40,902,125
Other financial assets	5	551,610	-
Cash and cash equivalents	6	20,797,046	54,205,383
		124,473,859	95,107,508
Total Assets		124,570,966	95,226,465
Equity and Liabilities			
Equity			
Accumulated surplus		9,692,953	8,144,556
Liabilities			
Non-Current Liabilities			
Finance lease liabilities	7	-	29,635
Current Liabilities			
Trade and other payables	8	114,878,013	86,998,298
Finance lease liabilities	7	-	53,976
		114,878,013	87,052,274
Total Liabilities		114,878,013	87,081,909
Total Equity and Liabilities		124,570,966	95,226,465

South African Technology Network Trust

(Registration number: IT913/08)

Annual Financial Statements for the year ended 31 December 2021

Statement of Comprehensive Income

Figures in Rand	Note(s)	2021	2020
Revenue	9	8,673,471	8,961,331
Operating expenses	10	(7,635,535)	(8,146,695)
Operating surplus		1,037,936	814,636
Investment revenue	13	507,429	625,843
Finance costs	14	3,032	(33,480)
Surplus for the year		1,548,397	1,406,999
Other comprehensive income		-	-
Total comprehensive income for the year		1,548,397	1,406,999

South African Technology Network Trust

(Registration number: IT913/08)

Annual Financial Statements for the year ended 31 December 2021

Statement of Changes in Equity

Figures in Rand	Accumulated surplus	Total equity
Balance at 01 January 2020	6,737,557	6,737,557
Surplus for the year	1,406,999	1,406,999
Other comprehensive income	-	-
Total comprehensive income for the year	1,406,999	1,406,999
Balance at 01 January 2021	8,144,556	8,144,556
Surplus for the year	1,548,397	1,548,397
Other comprehensive income	-	-
Total comprehensive income for the year	1,548,397	1,548,397
Balance at 31 December 2021	9,692,953	9,692,953

Note(s)

South African Technology Network Trust

(Registration number: IT913/08)

Annual Financial Statements for the year ended 31 December 2021

Statement of Cash Flows

Figures in Rand	Note(s)	2021	2020
Cash flows from operating activities			
Cash (used in) generated from operations	16	(33,247,443)	40,262,204
Interest income		507,429	625,843
Finance costs		-	(1)
Net cash from operating activities		(32,740,014)	40,888,046
Cash flows from investing activities			
Purchase of property, plant and equipment	2	(36,134)	(2,471)
Increase in financial assets		(551,610)	-
Net cash utilised in investing activities		(587,744)	(2,471)
Cash flows from financing activities			
Finance lease payments		(80,579)	(85,550)
Net cash utilised in financing activities		(80,579)	(85,550)
Total cash movement for the year		(33,408,337)	40,800,025
Cash at the beginning of the year		54,205,383	13,405,358
Total cash at end of the year	6	20,797,046	54,205,383

South African Technology Network Trust

(Registration number: IT913/08)

Annual Financial Statements for the year ended 31 December 2021

Detailed Income Statement

Figures in Rand	Note(s)	2021	2020
Revenue			
Subscriptions and marketing fees		4,858,667	5,365,581
Special projects		3,149,804	3,595,750
Project management fees		665,000	-
	9	8,673,471	8,961,331
Operating expenses			
Administrative expenses		(1,110,823)	(1,546,951)
Application of surplus funds		(45,600)	-
Bad debts		(521,029)	(377,006)
Bank charges		(11,534)	(12,597)
Conference expenses		(462,742)	(289,461)
Depreciation, amortisation and impairments		(57,984)	(98,902)
Employee costs		(2,069,913)	(1,972,643)
ITEC expenses		(25,708)	(28,550)
Impairment of debtor - movement in provision		-	230,000
Legal expenses		(44,375)	-
Loss on exchange differences		(57,906)	(235,222)
Penalties and interest		-	(4,629)
Project expenses		(3,091,898)	(3,649,602)
Subsistence and travelling expenses		(136,023)	(161,132)
		(7,635,535)	(8,146,695)
Operating surplus		1,037,936	814,636
Investment income	13	507,429	625,843
Finance costs		3,032	(33,480)
		510,461	592,363
Surplus for the year		1,548,397	1,406,999

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Company Registration

Number: 2020 / 842028 / 08

