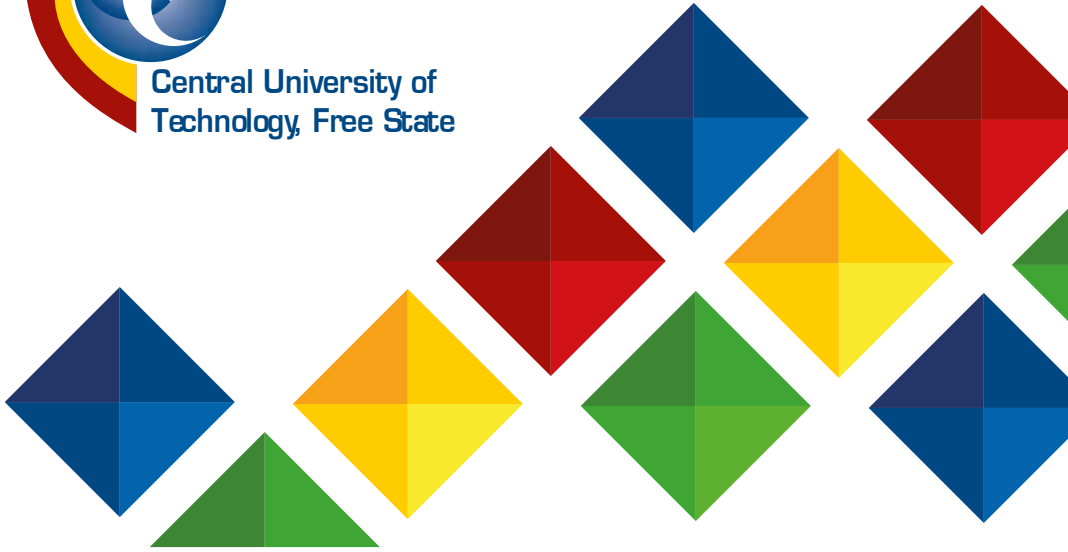




Central University of
Technology, Free State



2016

THE STATE-OF-THE-UNIVERSITY ADDRESS

Towards an innovative and entrepreneurial
university, for city and regional development

Professor Thandwa Mthembu
Vice-Chancellor & Principal

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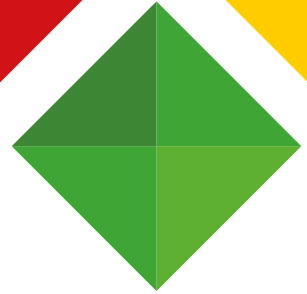
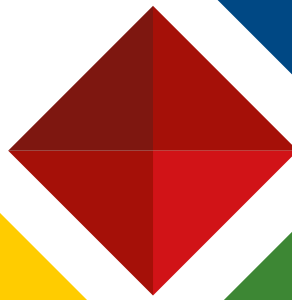
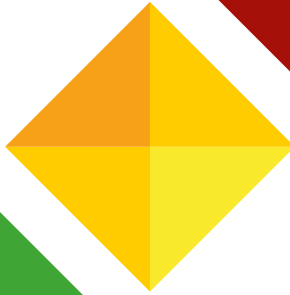
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INTRODUCTION

The concept of a State-of-the-University Address is a CUT innovation, albeit imported from government into the university sector, bereft of whistles and bells. At CUT, it started in 2012, not merely as a means of opening the University, but also to serve as a demonstration of CUT's public accountability to all our stakeholders, partners, donors, alumni, staff, students and our broader society. The State-of-the-University Address serves the following purposes: Firstly, it highlights the progress made under each of the institutional goals towards the implementation of Vision 2020 during the previous year; and secondly, it sets the tone for the following year and beyond.

Our Vision 2020, approved by Council in 2010, is a simple one. It states:

“By 2020, Central University of Technology, Free State shall be an engaged university that focuses on producing quality social and technological innovations for socio-economic development, primarily in the Central region of South Africa”.

As we unmake, make and remake ourselves as a university of technology, the future holds great promise for our city, our province, the broader Central region and our country. CUT is, unashamedly, located in, and therefore focused on, the Central region, the Free State province and the Mangaung Metropolitan. If we are worth anything, that is where we should prove our worth. Once we have done so, by using our own knowledge and innovation, but also by exploiting knowledge and innovation from anywhere in the world, the rest of the world will take notice and emulate what we do in this region. In our view, that is how we could become a global player.



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WORLDWIDE

2014

According to our Strategic Plan, which was also approved by Council in 2010, our major focus for the period up to 2017 is advancing our academic project. Thus far, we have innovated and delivered market-inspired, demand-driven and user-oriented curricula courtesy of the Strategic Transformation of Educational Programmes and Structures (STEPS) process, a project we completed in 2012. As long as the state of our economy remains what it is – with stunted growth and high levels of unemployment - those endowed with knowledge and high-level skills have to do more. Endowed with great intellect, skill and capacity to innovate as they are, universities are one of those organs of society that should do more. Thus, our major focus in the academic project over the next few years will be on translating our knowledge and innovations from our classrooms and laboratories, through entrepreneurship, into platforms that will help our city and region grow economically. The theme of this Address encapsulates this goal.

In short, between 2016 and 2020, we seek to build an engaged, purposeful, innovative and entrepreneurial university of technology. Not one that simply churns out curricula and graduates without much care, thinking what it is doing is the best. But, rather, a university that takes a step further to contribute towards empowering its graduates to help develop our city and our region. We are now halfway into the implementation of our vision. Towards the end of 2015, we completed the revision of our Strategic Plan 2016 to 2020, so as to respond to the new challenges our University and our region face, and to infuse a number of new innovations required to meet these challenges.

The process presented us with an opportunity to refine our institutional goals, too. We now have five very focused institutional goals, namely:

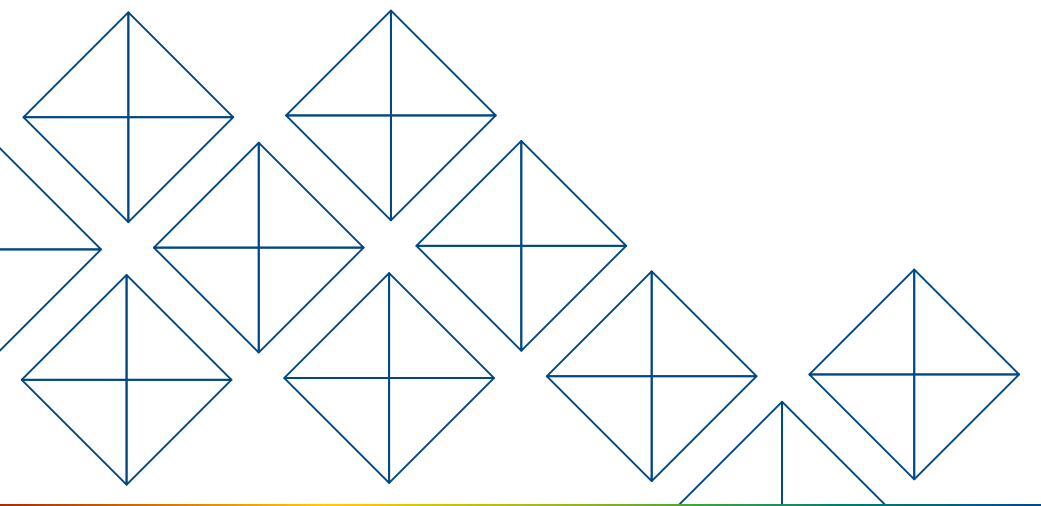
- **institutional advancement** – to continuously advance the concept of a university of technology, and to advance our university, its infrastructure and its facilities through value-adding links with government, business, industry and the broader society;
- **teaching and learning** – to shape the academic future of CUT in such a way that it is of high quality, niche-focused and differentiated, and realises outcomes in city and regional development;
- **research and innovation** – to establish CUT as a research- and innovation-inspired university of technology that has distinct pockets of research excellence resulting in tangible outcomes in the broader society;
- **university life** – to create an institution that encourages a diverse, democratic, deliberative, socially cohesive environment and academic ethos amongst students and staff; and
- to ensure **(financial) sustainability** during a period of great economic, social and environmental difficulty for our society, our university and our students.

The revised Strategic Plan provides a roadmap for attaining CUT's goals and accelerating its success.



Ladies and gentlemen, this State-of-the-University Address, as noted earlier, highlights the incredible advances CUT has made over the last period, and in particular in 2015, under each of the five goals. Furthermore, it highlights our plans for the next period of great innovation on our academic project, especially during 2016.

I wish to emphasise that the accomplishments I shall share with you are a consolidation of the indefatigable efforts of several individuals and groups, both within and outside the University, whose unwavering purpose is to advance CUT. Our Council guides our 'crazy ideas', and provides all the resources to test and implement them. The Executive Management Team and the Management Committee lead us with purpose, determination and dedication. The Senior Management Team and the broader administrative staff implement our vision with great care and skill. The Unions ensure that the interests of our staff and those of the University are aligned, and help to advance the University as a whole – not merely the immediate interests of our staff. Our student leaders, with whom we deliberate extensively, seek to assure the aspirations and welfare of the student body, but with great care that the CUT remains intact and viable. Our alumni watch over us, and provide opportunities and support from outside in order to perpetuate their own legacy at CUT.





INSTITUTIONAL ADVANCEMENT

Advancing the concept of a university of technology and our University

As indicated above, institutional advancement focuses on continuously advancing the concept of a university of technology, and on advancing our University, its infrastructure and its facilities through value-adding links with government, business, industry and the broader society.

As part of the first phase of the implementation of our vision (2010-2013), we committed to “building a strong and solid foundation”. In doing so, we initiated a number of projects, aimed at re-imagining, unmaking, making and remaking our University, to become a first-rate university of the 21st century. Examples include:

- the new infrastructure and facilities – approximately R600 million has been invested in new buildings and facilities since 2010, when the construction of the first set of new buildings commenced;
- undertaking a broad-based process of curriculum transformation that led to market-inspired, demand-driven and user-oriented programmes and a number of other academically oriented initiatives;
- building a transformed, deliberative and value-driven university that focuses not just on inputs and processes, but more on the ultimate outcomes of our work, which should reverberate in the broader society;
- placing social and technological innovations at the centre of our programmes and projects, and for the benefit of our city and the region; and
- our new focus now on using entrepreneurship education to translate our social and technological innovations into platforms that should contribute to city and regional development.

ENGAGING WITH GOVERNMENT AT LOCAL, PROVINCIAL/REGIONAL LEVEL

Using the knowledge and innovations of our people, our infrastructure and our facilities, we do our best to contribute to the development of the broader society, in partnership with government and business/industry. In this respect, and especially in partnership with government, CUT continues to contribute to the improvement of the quality of education in our schools as part of our contribution to the socio-economic development of the region.

The Schools Advancement Academy (SAA), the umbrella body for projects that support the schooling sector in the Free State, in co-operation with the Free State Department of Education (DoE), continues to make a valuable contribution to learners and schools. With financial support from our partners, we do our best to contribute to the success of the province's educational outcomes. As of 2016, the SAA will be expanded, so as to provide more support to the school and post-school sectors. In collaboration with the DoE, CUT is in the process of reprioritising the SAA, to give even more impetus to professional development, training and support in Science, Technology, Engineering and Mathematics (STEM) fields. This initiative will target teachers, lecturers, students and learners at schools, Technical Vocational Education and Training (TVET) colleges, and other post-school institutions. The DoE has already provided CUT with funding for the establishment of the STEM Academy, which will primarily be hosted at the Bloemfontein campus. Working collaboratively in this post-school space, the Manufacturing, Engineering and Related Services Sector Education and Training Authority (MerSETA) Chair in Engineering Education will continue to provide support in STEM to the TVET colleges and other post-school education and training institutions.

In 2015, the Winter and Spring Schools, funded by Standard Bank, attracted a total of 1 289 learners. The number of subjects offered, from which learners could select a maximum of three, was increased to nine, with the inclusion of Computer Applications Technology, amongst others. In 2016, plans are afoot to have at least the same number of learners as in 2015 enrolled for the Winter and Spring Schools.

The same subjects will be offered. We hope to retain our current funders, and to bring others on board that will help to increase enrolment in this exciting programme over the next few years.

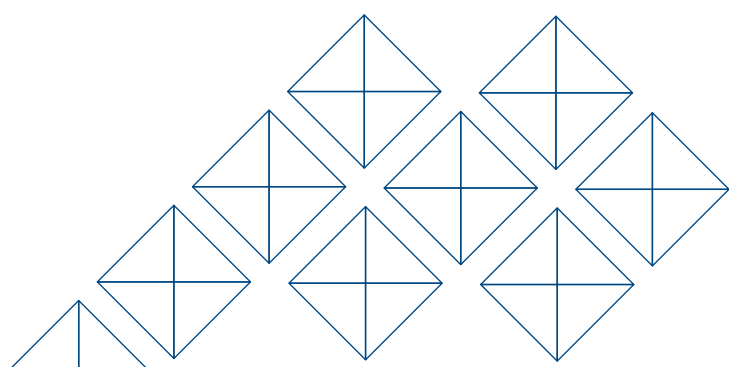
In 2015, our Saturday School programme, in which a total of 478 learners – 349 Grade 11 learners and 129 Grade 12 learners – participated, proceeded well, with funding received from merSETA and in-kind support for the transport of learners from Botshabelo and elsewhere provided by Interstate Bus Lines. In 2016, plans are afoot to assist at least the same number of Grade 11 and 12 learners as in 2015. Registrations in this programme commenced on 16 January 2016, and classes commenced on Saturday, 06 February 2016. Again, we hope to retain our current funders, and to bring others on board, so that enrolment in this programme could increase over the next period.

Our Educator Mentorship Development Programme, generously funded by the Telkom Foundation for a number of years now, has been making content-based interventions with primary school teachers, mainly in the areas of Mathematics and Science. Funders and institutions often ignore this foundational level of education, at our nation's peril.

All of the initiatives mentioned above provide a comprehensive set of interventions focused on STEM at school and post-school level, which, in turn, will help to propel technological innovation in the city and in the region.



"The start of a two-week endeavor by CUT and partners which assists Grade 12 learners to pass their final year."



In 2015, a total of 473 unemployed youth from the greater Mangaung area were trained in the Digital Television Installer Training Programme through a tri-partite agreement between the Mangaung Metropolitan Municipality (MMM), CUT Innovation Services (CUTIS) and Triscan/Kgogelo Joint Venture. The purpose of the training was to facilitate skills transfer, and to ensure that the MMM possess a sufficient technical support base that will ensure that nobody within the municipal sphere/area is deprived of TV reception, as and when the switching off of analogue TV broadcasting transmitters takes place.

The Association of Accounting Technicians (AAT) of South Africa (SA) is in partnership with the South African Institute of Chartered Accountants (SAICA) and the United Kingdom (UK)-based Association for Accounting Technicians (AAT). This Association is dedicated to the education, development, regulation and support of accounting technicians.

The AAT programme at CUT, which commenced in 2012 and has gained more momentum, is an intervention to improve access to higher education for students from previously disadvantaged backgrounds. Not only can the first level of the qualification open doors to a university qualification, but each of the three levels is a qualification in its own right. Part of CUT's strategic objectives is the support of national needs – through first meeting local and regional development needs – which include Operation Clean Audit. According to the Business Day of 30 July 2014, the Auditor-General, Kimi Makwetu, said that less than 10% of the country's municipalities received a clean audit report. The programme is, therefore, part of an initiative to assist government in the attainment of this important goal of receiving clean audits at every assessment.

The programme is growing rapidly, and graduate numbers have increased from 20 students in 2012 to an expected 50 in 2016. Due to the demand for the programme, planning is underway to expand it to our Welkom campus in 2016.

ENGAGING IN LOCAL AND REGIONAL DEVELOPMENT

Leadership in city and regional development is often regarded as the purview of government. However, in a knowledge-based economy, the active involvement of a university in a region has become increasingly important. Universities are proven assets to regional economies, providing employment opportunities and skilled labour, and contributing to local demand for goods and services. As a result, quad-helix¹ partnerships among the university, government at all levels, business/industry and the broader society have been acknowledged as powerful platforms for city and regional development. As in other parts of the world, they are regarded as a means to achieve sustained economic growth and socio-economic development.

¹ The term quad-helix is an extension of the term triple-helix, which should be well-known in the university sector. Unlike the term triple-helix, which focuses on a tripartite partnership between government, business/industry and universities, the quad-helix includes the broader society and its organs as the fourth partner.

Through its Ten Year Innovation Plan (2008 to 2018), the Department of Science and Technology (DST) has been encouraging regions or provinces to develop their own regional innovation strategies that align with the National Innovation Strategy. CUT's focus on the city and the region as centres of its development efforts partly takes its cue from this plan. We hope that this initiative will provide fertile ground for students in our entrepreneurship education programmes to plant seeds in the regional development field through their knowledge and innovations.

As stated in our vision, CUT's ultimate objective is to contribute to socio-economic development, and more especially to city and regional development. In order to realise our vision, the University will enhance its output of social and technological innovations that will impact on development. South Africa needs new wealth and job creators to solve the economic and job crises. CUT thus seeks to introduce innovation and entrepreneurship education, aligned with the university's vision of becoming a robust agent for socio-economic development.

The Regional Innovation Forum Free State (RIFFS) is an entity inspired by the Department of Science and Technology (DST)'s Ten Year Innovation Plan, and is currently under the custodianship of CUT. The aim of this Forum is to bring all the quad-helix stakeholders together, with the sole purpose of advancing socio-economic development in the Free State. The partnerships RIFFS has helped to establish involve mutual projects, collective funding, collaborative events, promotional activities and competitions for young innovators in the region. Large collaborative projects that are being pursued include the establishment of a Free State Science and Innovation Park and the establishment of a Solution Exchange Platform, to name but a few. Collaborative events include an Entrepreneurial Education Seminar; a symposium on quad-helix partnerships; a number of regional competitions and events into assistive designs; master caterers and social innovation; engagement sessions; meetings with stakeholders from the Free State Economic cluster, the University of the Free State (UFS), non-governmental organisations (NGOs) and business support entities; and hosting workshops on creativity, design principles and community engagement.



"CUT students exhibited their entrepreneurial works at the inaugural Entrepreneurial Day in 2015."

The collaboration sought with local municipalities and provincial government includes setting up memoranda of agreements (MoAs) with CUT, with RIFFS as the operating agent that will facilitate projects, offer training, and host events that will support regional innovation.

The Free State Science and Innovation Park is a prominent regional project, which was inspired by DST and is facilitated by RIFFS. Comprehensive feasibility studies have been conducted, with outcomes favouring the establishment of the Park. The Park will house a number of innovation and research entities from CUT, TVET, UFS and government, as well as business support, incubation, formal enterprises and related components. The overarching idea of the Park is to play a role similar to the Innovation Hub to the East of Pretoria and the Technopark in Stellenbosch, for the Central region. The success of this project will be in the breadth and depth of collaboration among the Mangaung Metropolitan; the Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEA); the Premier's Office; other relevant national departments; and business/industry.

Another major regional project being conceptualised is the establishment of an Innovation and Manufacturing Hub, the pilot of which will be housed at CUT, Bloemfontein. This hub will include a Manufacturing Administration Centre, an Incubator, the FabLab, the Product Development Technology Station (PDTs) and the Seda Agricultural and Mining Tooling Incubator (SAMTI). Furthermore, the Manufacturing Hub will support the Centre for Rapid Prototyping and Manufacturing (CRPM) in the design and manufacturing of medical implants and operational planning devices, and in producing unique tooling solutions incorporating conformal cooling – a ground-breaking technology in South Africa.



"The FabLab located at Bloemfontein campus."

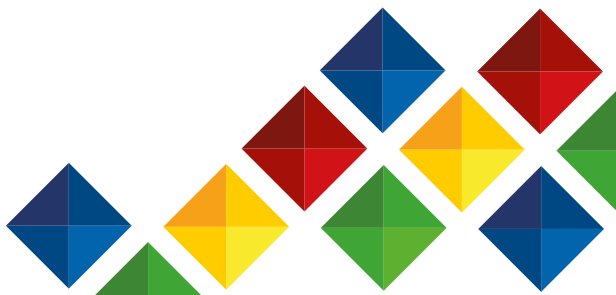
The Welkom Revitalisation Project has been identified as a priority. The aim of the project is to develop and revitalise the Lejweleputswa District by means of innovative solutions, especially in the mining and agriculture enterprises; re-operationalising the mines via contemporary mining processes as well as the utilisation of secondary/contaminated mining infrastructure and resources, such as mine-dump-related agriculture; the bioremediation of effluents; the re-utilisation of mining equipment, etc. Solutions that will help to address the community's challenges regarding social dynamics; crime; poverty; small-, medium- and micro-sized enterprises (SMMEs); etc. will also be investigated.

The collaboration sought with local municipalities and provincial governments further include the implementation of projects, the development of skills, and engagement in contract research. To ensure that whatever we do is informed by the knowledge available from across the world, CUT will engage with both local and provincial governments through a seminar that will allow collective learning from, for example, the Dortmund Case in Germany², and many other successful cities and regions of the world.

CUT, in partnership with the Free State Premier's Office, is in the process of establishing a Confucius Institute as part of a collaboration between CUT and Wuyi University, China. This institute will play an important role in supporting provincial government's initiative to strengthen collaboration with China.

The second phase of the African Union Commission (AUC), the European Union (EU) and the Association of African Universities (AAU) Harmonisation and Tuning Initiative has just been launched. This phase provides the following opportunities to universities to develop competence-based curricula; build capacity in teaching and learning and quality enhancement; define common and agreed-upon study credits and assessment tools; develop joint agreements between universities, and; participate in both continental and international networks. This project will enhance collaboration with the rest of Africa, one of the main focus areas in our Internationalisation Strategy.

It is clear that there is still much to be done. The road ahead will not be without challenges. However, by focusing on innovation, entrepreneurship and quad-helix partnerships in promoting city and regional development in the Free State, these challenges can be overcome to the betterment of the people of this province and region.



² Dortmund is the largest industrial city in the Ruhr Area in Germany that benefited from its core functions. There are many other successful regions elsewhere in the world that were part of my sabbatical leave visits in 2014, from which we have already taken some lessons, and we will continue to do so.



TEACHING AND LEARNING

Innovating our curricula

Earlier, we noted briefly that, in 2010, we focused on teaching and learning to ensure that our curricula remain relevant, responsive, market-inspired, demand-driven and user-oriented, courtesy of the STEPS process on which we embarked. This process has resulted in the development of nine new academic programmes in the fields of Renewable Energy Technologies; Hydrology and Water Management; Health Management; Education, Design and Studio Art; and Community Development Work, four of which were introduced in 2014.

In addition to the first four of these new programmes being introduced in 2014, a further four were introduced in 2015. The latter includes an Advanced Diploma in Logistics and Transport (13); a Bachelor of Science in Hydrology and Water Management (15); a Higher Certificate in Community Development Work (36); and a Bachelor of Education in Senior Phase and Further Education and Training (FET) Teaching (493). The success rate following the implementation of these programmes has also been very impressive, ranging between 76% and 97%. By 2016, we will have introduced all nine of the aforementioned programmes. In 2015, an additional four new programmes were approved by the Department of Higher Education and Training (DHET) and accredited by the Council on Higher Education (CHE), for implementation in 2017. These include a:

- Diploma in Engineering Technology in Civil Engineering;
- Bachelor of Engineering Technology in Civil Engineering;
- Diploma in Engineering Technology in Electrical Engineering; and
- Bachelor of Health Sciences in Chemical Technology.

Furthermore, a total of 15 new programmes were approved by the DHET, and are awaiting accreditation by CHE.

At CUT, we continue to improve the quality of our programme offerings. Our Quality Enhancement Project (QEP), as initiated by CHE, was officially launched and implemented in 2014. In 2015, the first phase of this project was completed, and a comprehensive report was approved by Senate for submission to CHE. A total of 38 Category A programmes were aligned with the Higher Education Qualifications Sub-framework (HEQSF), and accredited by CHE, prior to approval by the DHET, for implementation in 2016. These include 13 doctoral degrees, 17 master's degrees, seven diplomas and one higher certificate. While some of the programme names are in the appeals process, an additional 12 Category B programmes were aligned to the HEQSF, and accredited by CHE. They are pending approval by the DHET, for implementation in 2017. These include ten diplomas, one bachelor honours degree, and one doctoral degree. A further 17 new programmes were cleared by the DHET, and have since been submitted to CHE for accreditation. These include nine bachelors degrees, four diplomas, one postgraduate diploma, two advanced diplomas, and one higher certificate.

Furthermore, our STEPS process led to the introduction of across-the-board graduate attributes that constitute what we call the 'core curriculum'. These graduate attributes help to instil selected generic graduate knowledge, skills and professional behaviours. All our students are exposed to them. We believe they provide a better link between the knowledge, skills and professional behaviours our graduates earn, the expectations of business/industry and the broader society.



"Students have access to state-of-the-art facilities at CUT."

Another innovation related to our curriculum is the incorporation of Higher Education HIV/AIDS (HEAIDS) into our curriculum. Universities South Africa is spearheading this initiative. In January 2015, CUT launched a new project, where HIV/AIDS education will be integrated into academic programmes, and made compulsory for all students.

Apart from innovations in our curriculum, we also witnessed innovations in teaching and learning tools in 2015. Library and Information Services launched e-books (digital or electronic books) in April 2015. The introduction of e-books is a logical step, as we are now in the digital age. This is aligned with our aspirations as a technology-inspired university of technology.

PROMOTING INNOVATION AND ENTREPRENEURSHIP AMONG STUDENTS AND STAFF

CUT is of the view that educational philosophy and practice at universities are archaic, and serve an economic system that no longer exists. In the past, graduates were trained to be jobseekers, and had ready-made jobs waiting for them in the market.

We now have an economy that no longer assures them and other young people any job at all. Thus, universities, especially universities of technology, with their focus on educating for the workplace, cannot continue in the same old way and forlornly hope for different outcomes. They cannot produce graduates into non-existent workplaces. They have to think of innovative ways of producing more wealth and job creators than jobseekers.

As a university of technology, our challenge is to focus even more on helping every student to discover and develop their full potential, not just in knowledge and skills, but also in how to exploit the knowledge and skills for their own livelihood, as well as that of their families and communities. To do so, they need to be exposed to situations that stretch and test them to put to bear their knowledge, innovation and high-level skills for wealth creation in the city and the region.

Many innovative and entrepreneurial universities in the world are expanding their educational curricula and programmes to foster innovation and entrepreneurship for the benefit of their cities, regions and countries. As of 2014, CUT embarked on a process of learning about innovation and entrepreneurship education. As noted earlier, we now have a Strategy for Innovation and Entrepreneurship, which we already started to implement in 2015. It seeks to transform our philosophy and practice to ensure that, through entrepreneurship, we become a robust agent for city and regional development. The main objectives in this respect are to: create a climate that fosters innovative practices and entrepreneurial activity; promote student innovation and entrepreneurship; encourage staff innovation and entrepreneurship; (iv) support the university's technology transfer function; facilitate university-industry collaboration, to support entrepreneurship education, and; engage with role players in the regional, city and local economic development arena, to create collaborative platforms for innovation and entrepreneurship. Undoubtedly, the capability to innovate and to bring innovation successfully to the market are the crucial determinants of the global competitiveness of nations.

In preparing university students to make a meaningful contribution towards a better world as entrepreneurs and business leaders, ENACTUS³ challenges students to address real-world economic, social and environmental issues in their communities. As a catalyst for the development of leaders who will create a better world through business, ENACTUS provides students with the most relevant and rewarding opportunities to use their leadership abilities to improve the world in which we live. It also provides a platform for our students to hone their entrepreneurial skills through competitions, which are an excellent way to actively engage lecturers and students in the learning process. In 2015, CUT's ENACTUS students participated in the ENACTUS South Africa National Competitions, and were awarded top prizes in the following categories: Triple Bottom Line Sustainability; Capacity Building through Effective Empowerment; and Business Solutions for Community Development.

"Ms Lebohlang Selloane, holds a BTech degree in Diagnosis Radiography from CUT. She was selected to participate in the 2015 Nelson Mandela Washington Fellowship for Young African Leaders, a flagship programme of President Obama's Young African Leaders Initiatives (YALI)."



CUT's ENACTUS is embarking on three main projects, namely: the Local Economic Development Project in the Thabong industrial area in Welkom (sponsored by Harmony), which involves developing a model SMME Hub; the Crafts Project, in collaboration with KidzCare, Bloemfontein, which capacitates street children under the age of 18 years with skills, knowledge and competencies to enable them to lead a normal life, and; the Bakery Project in Thaba 'Nchu, which is aimed at resuscitating a defunct bakery.

In October 2015, CUT hosted its first Entrepreneurship and Innovation Week, where students showcased and sold their products and services to both CUT and the broader community. Another one will take place during the week of 22 February 2016. A number of events and competitions that focused on student innovation were held as part of this programme. In the near future, we will also be introducing formal short and full programmes that will impart practical knowledge and skills that entrepreneurial students require to prolong the lifespan of their ventures.

One of our own, Ms Lebohlang Selloane, a CUT alumnus, has made us proud. In 2015, she obtained first place in the 2015 Business Partners/SME Toolkit Global Entrepreneurship Week's Business Plan Competition for Aspiring Young Entrepreneurs; was selected for the 2015 Young African Leaders Initiative (YALI) Mandela Washington Fellowship, and; obtained first place in the 2015 Forbes Women Africa Innovator of the Year. It would take the entire Address to mention many other CUT top achievers, both old and new, as they are numerous.

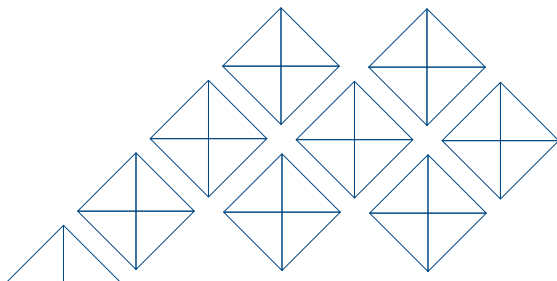
³ ENACTUS is a global, non-profit organisation that works in partnership with more than 1 500 universities in more than 40 countries.

In 2015, four spin-off companies emerged from amongst our students and staff. Through project initiatives by CUT Innovation Services (CUTIS⁴), a company entitled AddColour (a software application company) was established. Through the CUTIS partnership with merSETA, AddColour has developed two customised software applications for merSETA. Another pair of our students, in collaboration with one of our lecturers, established an information technology (IT) software company entitled Softbrain. The innovation behind this company emanates from a master's research project in IT. The technology developed within the broad field of the Internet of Things (IOT) will go a long way to help organisations manage their assets, as it has the capacity to track asset movements. Two businesses have spun off from the CUT incubator during 2015, namely Silver Flame Trading, which opened an information and communication technology (ICT) store in the City Centre here in Bloemfontein, and Tamikk Fatuku Sterilizer, which established a factory in Bultfontein. We want more and more of our students to do the same; not by default, but by design through a well-conceptualised and delivered entrepreneurship education programme.

The focus on a number of these spin-off ICT companies proves that many years of effort to establish a regional ICT Hub in the Free State are slowly bearing fruit. An international partnership, to be cemented in 2016, with the Instituto Tecnologica de Sonora (ITSON), which spun off an ICT company called Novutek in 2004, will surely help us to co-ordinate and commercialise all these ICT-related spin-off companies, to offer a range of ICT and, in particular, software products and services.

What we have demonstrated above, is that CUT is not just theorising about innovation and entrepreneurship, but that the University is already involved in tangible programmes that are beginning to nurture some of our students, who will be wealth and job creators in our city and region. As demonstrated in the examples provided above, our people – students, staff and even our alumni – collaborate to produce social and technological innovations that have the potential to turn our regional economy around.

Our new sabbatical leave policy encourages academics to pursue entrepreneurial endeavours and spend some time in the industry, both to obtain the most recent industry experience, so as to educate appropriately for the industry, and to acquire new workplace-relevant knowledge with which they could infuse their curricula and become entrepreneurial in our laboratories and lecture rooms. This will increase their potential for successful technology development and the commercialisation of research. An entrepreneurial education symposium will take place at CUT in 2016, during which a review of STEPS and the new initiatives in innovation and entrepreneurship education will take place.



⁴ CUTIS stands for Central University of Technology Innovation Services, a Trust that holds all of CUT's interests in the commercialisation of intellectual property (IP) and other University assets. It became operational in 2012, and has already made strides in generating third-stream income.

PROMOTING STUDENT ACCESS AND SUCCESS FROM THE FIRST POINT OF CONTACT THROUGH GRADUATION AND BEYOND

CUT has an obligation to meet the enrolment targets that were agreed with the Minister of Higher Education and Training in 2014.

In 2015, CUT had a student enrolment of 14 190 students in its four faculties, namely the Faculty of Engineering and Information Technology; the Faculty of Health and Environmental Sciences; the Faculty of Management Sciences; and the Faculty of Humanities; the latter incorporating Education and the Arts. Our target for 2016 is to enrol 14 240 students.

"Prof Zakes Mda was awarded an Honorary Doctorate of Technology Degree in Language Practice in March 2015 for his contribution to language practice in areas of contemporary literature and creative writing.

From left: Dr Brenton Fredericks, Head of the Department of Communication Sciences; Prof. David Ngidi, former Dean of the Faculty of Humanities (now Deputy Vice-Chancellor: Teaching and Learning); Prof. Mda, and Prof. Thandwa Mthembu."



Approximately 3.2% of our student body consists of international students, mainly from Southern Africa. We also have student exchange programmes from many parts of the world that bring students to our University for shorter periods. Our objective is to increase this proportion of our enrolment to 10% by 2020, with the majority of these students recruited from the rest of the African continent.

In 2015, we exceeded our target of 45% of CUT's student body being enrolled in our priority field of STEM by 3.35 percentage points to 48,35%. Not many of our competitors can boast such a high percentage of enrolment in STEM, which is pivotal for the development of our city and region. However, we also remain strongly focused on other fields in the Humanities, the Arts, Education and Management Sciences. The latter fields are crucial in a country ravaged by many social ills.

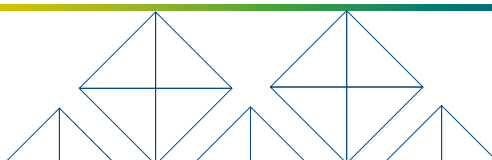
CUT's student success rate averaged approximately 75% in 2014, which makes it one of the highest in the university sector, especially amongst universities of technology. In 2015, CUT produced 3 351 graduates, which represents one of the highest graduation rates relative to the total number of students in our system. Our aim is to continue to produce highly competent, productive, passionate and caring graduates, who are well-equipped to deal with the socio-economic challenges of South Africa and create wealth and jobs right here in the region.

The retention of students until they meet their end goal of graduation is one of the University's major obligations to the country. Students' poor performance remains a challenge, and it is often linked to their under-preparedness and lack of educational, social and financial support for University studies. The most common and highly debilitating aspect of such under-preparedness is the level of their academic literacy. A number of programmes are in place to mitigate this.

For example, the Academic Literacy and Communication Studies (ALC) programme is a well-established programme that assists students to enhance their reading and writing skills in academic English, amongst others. This programme is compulsory for all first-year students. The Student Mentorship Programme has been introduced in all faculties as a strategic intervention. The aim of this programme is to provide students with a supportive environment that will motivate and assist them to graduate within the required period. It provides a framework for positive interaction among students, mentors and the lecturing staff.

In addition, Residence Life, through various activities, continues to provide students with an environment that effectively supports their academic success and their psychosocial development. Student Support Services reflect the University's commitment to create a vibrant teaching and learning environment for our staff and students. The range of services offered to students includes academic support (for example supplemental instruction (SI) and student peer mentorship), student counselling and health services, and support to student governance structures. These programmes are designed to connect students with lecturers, other staff and resources that support their progress towards attaining a degree or diploma within the minimum period. However, much more should be done in this area, too.

As we are a university of technology, it is only appropriate that technology is infused in our daily activities within and outside the lecture halls. These are exciting times for us, as we are now taking full advantage of the electronic platforms that exist to offer some programmes online, and to provide online services to our staff and students. In future, blended learning, where some courses will be offered online and supplemented with some contact sessions, will be available. It has been some years since the online student portal, Blackboard, was launched at CUT. A substantial number of programmes are already in this platform. State-of-the-art electronic equipment has been installed in some of our lecture halls and laboratories to allow students to take advantage of the technological platforms that facilitate their education.





RESEARCH AND INNOVATION

Refocusing our efforts towards city and regional development, in collaboration with industry.

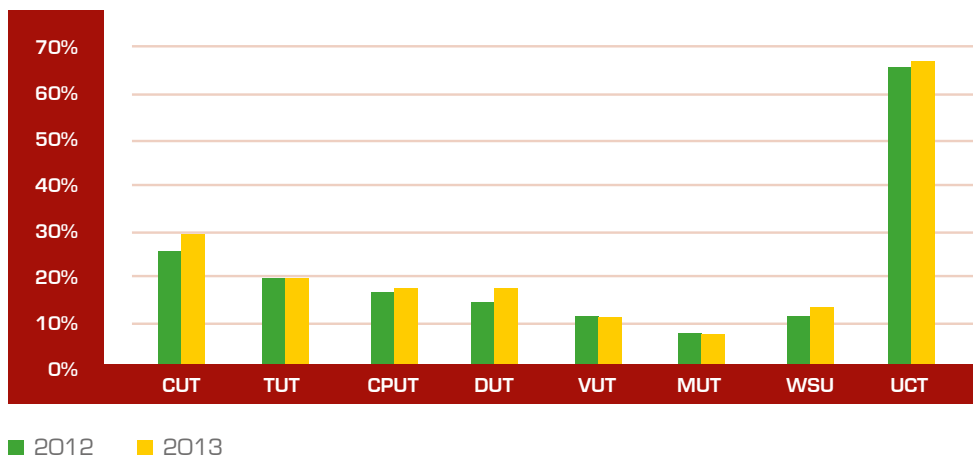
For many years, CUT has had a combined, Academic and Research Division. With many of our recent activities focusing on teaching and learning, research and innovation have not had sufficient uninterrupted focus and space to grow and prosper. Yet, from the advances we are making in the latter, we have proved beyond reasonable doubt that we have an immense capacity to compete favourably in our niche areas.

From this year onwards, we will be able to provide uninterrupted focus on research and innovation at Executive Management and other managerial levels. The former Academic and Research Division has now been split into two portfolios – one for research, innovation and engagement, and the other for teaching and learning. Prof. Henk de Jager, previously our Deputy Vice-Chancellor (DVC): Academic and Research, is now our DVC: Research, Innovation and Engagement, effective as from January 2016. Prof. David Ngidi, Dean of the Faculty of Humanities, will be holding the fort as Acting DVC: Teaching and Learning, until the position has been filled, hopefully by the end of March 2016.

Pertaining to research, streamlining the technology transfer process is one of the priorities for universities to link research and innovation, and, through entrepreneurship, transfer the latter to the marketplace. Effectively transforming research and ideas into marketable products and services is often a lengthy and complex process that requires substantial resources. Universities are one of the most important sources of the nation's research and development output. CUT's Technology Transfer Office (TTO) is now fully functional. The TTO's goal is to protect and promote the research developed by the faculties and students through commercialisation and patents. Once the research has been protected, the technology and information could be released, providing social and economic benefits. The TTO collaborates closely with CUTIS in this technology transfer and commercialisation space.

In 2016, six businesses are being incubated in the Bloemfontein campus incubator, whilst a further two are being incubated at the Welkom campus incubator. Two of the four spin-off companies mentioned earlier, namely Silver Flame Trading and Tamikk Fatuku Sterilizer, originated at the incubator.

CUT is committed to increasing its research outputs on an annual basis. One of the major challenges at CUT is increasing the research outputs in the form of articles, conference proceedings, books, patents and creative arts products. In order to enhance our research project further, it is critical that the seniority of academic staff be improved, so that we would be endowed with more research and innovation leadership. From 2008 to 2014, research outputs at CUT increased by 150%, from a low base of only 30 credits in 2008 to approximately 75 credits (which is still low) in 2014, produced by a relatively small group of academics and researchers. In 2015, 33% of our academic staff members held doctoral degrees, which is quite competitive in relation to our sister UoTs⁵, and even some traditional universities. The figure below depicts the proportion of academic staff members in possession of doctoral degrees at a selected group of universities (2012-2013). Data for 2014 and 2015 have not yet been released. The aim is to increase this proportion to 50% by 2020.



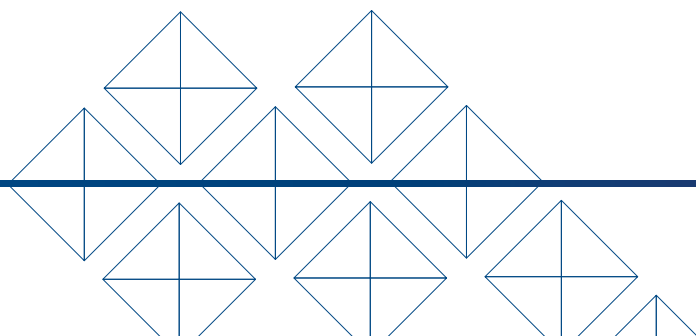
⁵ UoT stands for Universities of Technology, a subsector in the South African university system that focuses mainly on education and training for the workplace, together with research and innovation for our society's benefit.

Furthermore, to increase the pool of master's and doctoral students, the university requires a suitable number of Associate Professors and Professors. In June 2015, only 36 instructional/research staff held the rank of Professor, which is less than 13% of the academic staff complement. The aim is to increase this portion to 25% by 2020.

Research on a more cost-effective method of generating electricity for remote rural communities, which was conducted in the Department of Electrical Engineering, resulted in the development of a mathematical model and performance analysis of a micro-hydrokinetic river system for remote rural electrification. Furthermore, researchers in the Department of Civil Engineering have discovered a method of predicting drought conditions up to seven months ahead of time. The research, published in the International Journal of Atmospheric Sciences in December 2015, can be used to plan the management of water resources. In addition, a drought forecasting system that makes use of indigenous knowledge and computer science techniques (Artificial Neural Networks, Wireless Sensor Networks and mobile phones) to generate more accurate and contextualised (to the local people) drought forecasts has been developed by a research unit in the Department of IT. This work has attracted international limelight, including a live interview with BBC Radio News (UK) and publication in an international news bulletin (<http://motherboard.vice.com/read/south-african-scientists-think-software-and-tribal-knowledge-can-predict-drought>).

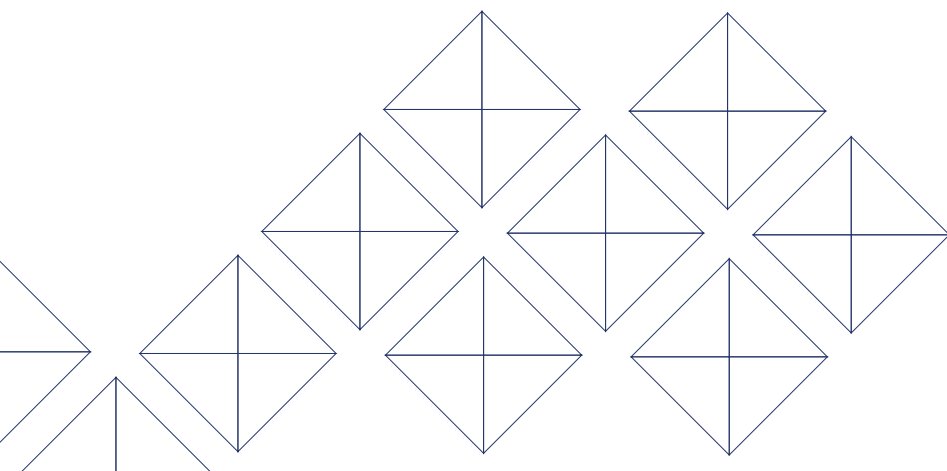
In the Department of IT, researchers developed a potentially innovative concrete and permanent hardware- and software-based asset tracking system, which is the basis of the spin-off company, Softbrain, we referred to earlier. This has already attracted potential clients, and during 2015, the work was published in three international peer-reviewed conference proceedings.

In 2015, a team of researchers from our Unit for Drug Discovery in the Faculty of Health and Environmental Sciences, under the leadership of Prof. Sam Mashele, Dean of the Faculty, discovered a new drug that has much potential to help fight aquatic animal infections caused by aquatic parasites. These micro-organisms are widely known within the scientific world as Oomycetes – fungus-like micro-organisms that continue to wreak havoc on the aqua-farming sector world-wide. These are considered the deadliest of pathogens, causing a diminished production of aquatic food. For years, researchers across the world have been trying to understand these micro-organisms in order to control the disease and develop novel drugs against these pathogens. CUT researchers are leading the way in finding solutions that will secure and enhance aquatic farming – something that sustains many livelihoods.





"The faculty team, from left to right: Sitting: Dr Khajamohiddin Syed, Prof Samson Sitheni Mashele, Dr Malebo Ntsoaki and Mr Mokoena Jack. Standing: Mr Mohammad Parvez, Mr Ntsane Trevor Mthakathi, Mr Richie Monyaki, Ms Ipeleng Kopano Rosinah Kgosiemang, Ms Norventia Jafta, Mr Mopeli Marshal Sello, Mr Lehlohonolo Benedict Ghanya and Mr Seiso Caiplus Raselemane."



Since its inception, the Centre for Rapid Prototyping and Manufacturing (CPRM) continues to make waves around the country. In 2015, the CPRM, in partnership with a team of three doctors from the Central region; Materialise (Belgium); Technimark; Stellenbosch University and the Council for Scientific and Industrial Research (CSIR), put a smile on many patients' faces that had been deformed. Recently, the doctors, Kobus Hoek (Bloemfontein); Phillip Jonsson (Kimberley) and Prof. Cules van den Heever, performed another corrective prostheses surgery on a Kimberley patient, removing a tumour, and restoring the proper functioning and aesthetics of the mouth, face and jaw using Additive Manufacturing (AM) technology.



"The expert team, from left (back row): Prof. Cules van den Heever, Dr Kobus Hoek, Dr Riaan Liebenberg, Mr Gerrie Booyesen and from left (front): Dr Philip Jonsson, Mr Johan Els, Project Engineer at CUT, and Mr Andre Heydenrych, Junior Project Engineer also at CUT."

In 2014, two patients underwent a similar operation at the same hospital, and received titanium implants, which were laser sintered with the use of 3-D printing from CUT's CRPM. This operation is the second of its kind in the country. It is true: Successful innovation almost always relies on partners outside the academe who understand the needs of their communities and customers, and who have a record of effective knowledge application.

Perhaps the highlight of the year was when, on 13 August 2015, the Minister of Science and Technology, Honourable Naledi Pandor, launched the SARChI⁶ Chair in Medical Product Development through Additive Manufacturing (or 3-D printing technology), awarded to CUT by the Department of Science and Technology (DST) and the National Research Foundation (NRF). This multidisciplinary field is a unique specialisation within the CRPM, made possible by CUT's concerted efforts and funding over the last five years to make it a flagship of sorts at our University. Prof. Ihar Yadroitsau, recruited from a top research institute in France, has been appointed as the Chair.



"At the unveiling ceremony held on 14 August 2015 is Prof. Henk de Jager Deputy Vice-Chancellor: Research, Innovation and Engagement; Prof. Igor Yadroitsau the research chair holder; Minister Naledi Pandor, and Prof. Thandwa Mthembu."

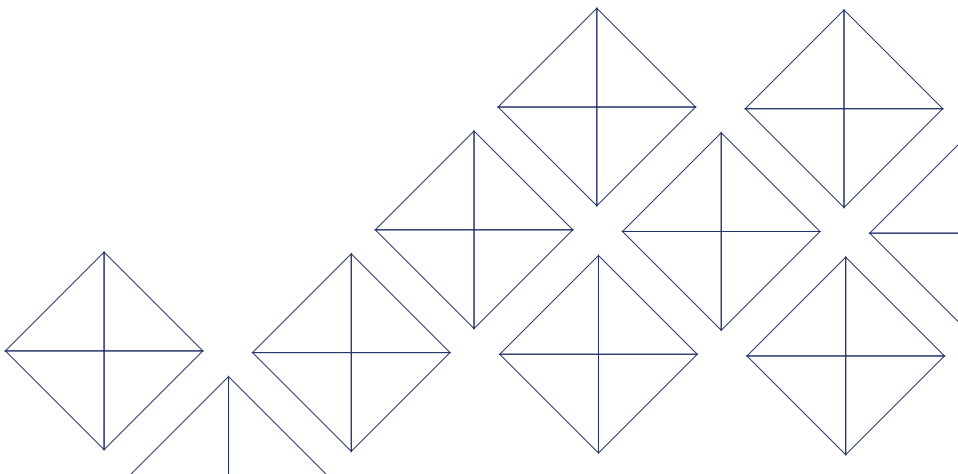
This Research Chair initiative was established in 2006 by the DST and NRF as a response to the requirements of the industry and science to improve the research and innovation capacity of public universities, and to produce high-quality postgraduate students. It creates opportunities for innovation at CUT. The collaborations that the Research Chair has with other scientists – internationally, from Sweden and France – are the breeding ground for new innovations.

⁶ SARChI stands for the Department of Science and Technology and the National Research Foundation's South African Research Chairs Initiative, in which top researchers are identified from across the world to lead research in fields that support our national innovation system.

There is a number of other pockets of innovation at CUT. In October 2015, we launched the Unit for Sustainable Water and the Environment. This Unit was established as a response to the water crisis that the country is facing. CUT and stakeholders from various organisations, including the International Institute of Applied System Analysis, Bloemwater and other South African universities, are coming together to develop innovative ways to solve the problem of water scarcity.

The month of August 2015 came with another notable achievement: CUT won the NRF Excelleration Award at the NRF Awards Function held on 27 August 2015 in Durban. A relevant caption about this award says: "This serves to acknowledge the Central University of Technology in recognition of the most improved research performance by a South African research institution over recent years." In short, all these research- and innovation-related achievements confirm, without any doubt, that CUT is a leading university in a number of respects, and that important organisations are beginning to notice and acknowledge this.

In closing this section, we are proud to report the successes of Profs. AB Ngowi, DP Ngidi and A Swart, and Dr P Rambe, in attaining NRF ratings from 2015 to 2020. In addition to their sustained research outputs, the first two professors are, respectively, Dean of the Faculty of Engineering and Information Technology and Dean of the Faculty of Humanities, which includes Education. It is very rare for leading researchers and academics to receive NRF ratings whilst they hold Senior Management positions. Having almost all our Deans as either rated researchers or leading research units in their own right is part of what makes CUT a "CUT above the rest". At CUT, research outputs are expected from all those who call themselves academics, including the Vice-Chancellor and Principal and the DVCs. All these efforts and related achievements indicate that CUT is on a path to greatness in research and innovation, and that we will be a force to reckon with in the university sector.





UNIVERSITY LIFE

Enriching the quality of life on our campuses.

Institutional governance and management are high priorities on our agenda, to ensure that the academic project continues without fail, and in an environment conducive to its success. Following the national #fees-must-fall campaign, we have seen students at many universities protesting. Damage to university property has been extensive at some of our universities. We should thank our Students' Representative Council (SRC) for availing themselves to engage with Management, so that we could reach amicable solutions. Demands by students in 2015 included the reduction of the upfront payment or deposit amount they pay upon registration; the 50% settlement of previous debt required before those who are in debt may register; cancellation of all student debt; and, possibly, other non-student-related matters that have developed, such as outsourcing. The Registrar and the CFO, and to a limited extent the Vice-Chancellor and Principal and other members of the Executive Team, have played crucial roles in engagements that have led to several win-win solutions for students and the University.

I have almost always found our student leadership to be thoughtful, reasonable and highly intellectual. In the midst of so much negativity we might see, we should be optimistic about our student leadership here at CUT and elsewhere in the country. Of course, some challenging moments do arise from time to time. That is part and parcel of robust engagement.

The University continues to provide and nurture a healthy learning and living environment for both students and staff. The revamped university cafeteria now provides many healthier options on its menu, to ensure our community's wellness. The construction of two gazebos at the open area in front of the Library and Information Services Building, as well as the establishment of a coffee shop in the atrium of the BHP Billiton Building, was completed in 2015. The gazebos will house service providers that will provide food and beverages and seating for students and staff. This forms part of the greening of the campus environment, as well as of the creation of more blended learning and social spaces.

The CUT radio station, which was launched in 2015, continues to support the University's vision and mission, and to market our University and our academic programmes. Beyond entertaining and educating the student body, it also provides the student leadership with an opportunity to engage with and through it. The listenership survey statistics that were released by Nielson⁷ in September 2015 indicated a listenership of approximately 22 000, much beyond our current staff and student population. Its loyal followers on Facebook as at 25 October 2015 were 12 000. This is no mean feat for a campus-based radio station a few months after its launch. Our aim is to increase listenership to 32 000 in 2016, and to run campaigns to solicit funding to make the station self-sustainable.

CUT continues to promote vibrant engagements with the community, both locally and nationally. A series of public lectures focusing on a range of topics was held throughout the year. To mention but a few, Prof. Yuri Maltsev, a published scholar in Economics and Economic History, presented a seminar entitled "Economic Freedom and Economic Success around the World". A prestige lecture on "The Constitutional Right to Equality" was presented in August 2015 by Judge Navi Pillay, a renowned international jurist. Furthermore, Dr Herman Mashaba, an accomplished businessman and a CUT alumnus, who was awarded an honorary doctorate by CUT in 2013, presented his second annual lecture on Entrepreneurship in September 2015, to which Prof. Kurt Leube was invited as the guest speaker. Prof. Kurt Leube is a Research Fellow at the Hoover Institution, Stanford University, and an expert on the Austrian School of Economics.

⁷ AC Nielsen Marketing & Media (Pty.) Ltd. is a leading global provider of information and insights into what consumers watch, listen to and buy.

Established in 2014, the International Office launched the International Student Association (ISA) in May 2015. CUT considers this launch an important development towards the integration of international students into the broader CUT community. CUT is everyone's University, and the world is a global village where everyone should live together in peace and harmony. The launch was geared towards promoting student and staff exchange, instilling internationalisation into the curriculum, supporting the Internationalisation Strategy of the University, which was approved in 2013, and initiating the globalisation of CUT's academic offerings, amongst other objectives.



"From left: Mr Emanuel Iwuchukwu, Project and Campaign officer; Ms Makatleho Pheko, Finance Officer; Ms Matumelo Leqala, Welfare officer; Ms Katloho Pakose, Secretary; Ms Mothepane Seqhobane, Deputy Chairperson; and Julius Akaba, Chairperson."

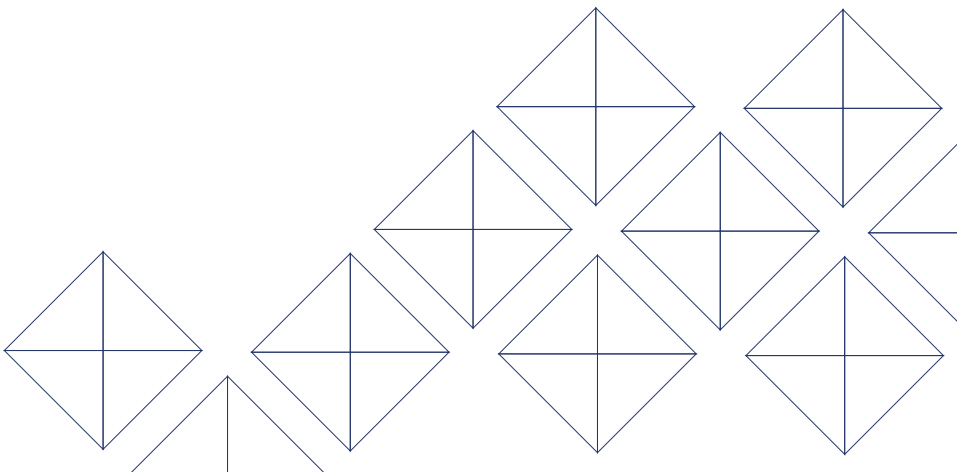
With the support of its strategic partners, namely the Department of Health (DoH), the CUT Wellness Centre continues to provide quality primary health care services to staff and students. The Wellness@CUT (WELLCUT) programme for staff has been running since February 2015, and offers staff the opportunity to screen for primary health care risks. During the second semester of 2015, a further effort in the form of a Women's Day celebration was launched. Many staff members benefit from these services.

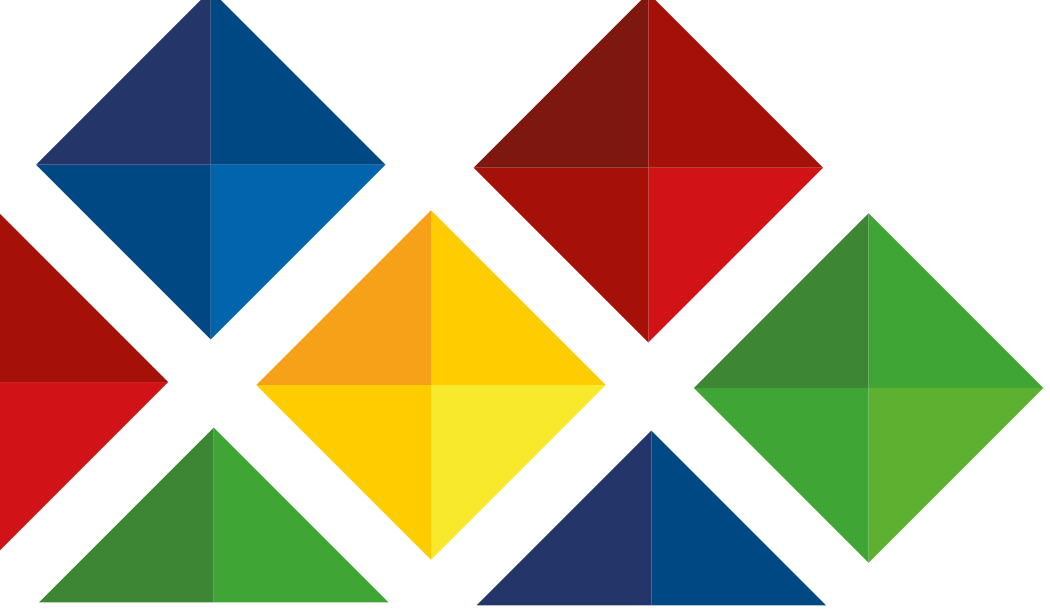
At CUT, we understand the need for our students to maintain a healthy balance between academic activities and enjoyment of the rich sporting and cultural opportunities that the University has to offer. We encourage our students to participate in sport and other extramural activities.

Our goal is to educate an entire person, and we recognise that some of the important lessons take place outside the lecture hall, the laboratory and the library. We aim to provide our students with the opportunity to realise their potential within a safe and exciting environment.

We have some of the best sporting teams at CUT, which include, amongst others, rugby, soccer, cricket and athletics. These teams have been very competitive over the past couple of years. For example, the CUT Soccer Team is currently in the ABC Motsepe (Vodacom) League. CUT's Rugby Team won the 2014 Varsity Shield, and was promoted to the universities' first division, the Varsity Cup. The CUT Choir has won several accolades over the years at regional and national levels, including representing the Free State in the Old Mutual National Choir Festival in 2015. Alternatively, students can also join one of the cultural, academic and leisure associations on campus, or become involved in one of the community engagement projects.

To ensure the safety of our students on campus, the introduction of the Mag-touch device to monitor security patrols was a breakthrough against theft and crime on both campuses. Clocking points are placed in all buildings, along the fence, and around areas where crime and theft are prevalent. These clocking points record and monitor the movement of security guards as well as of superiors each time a point is reached. In addition to this, the University has set aside millions of Rands for an integrated security system that will see more CCTV cameras and improved access control, amongst other security measures.





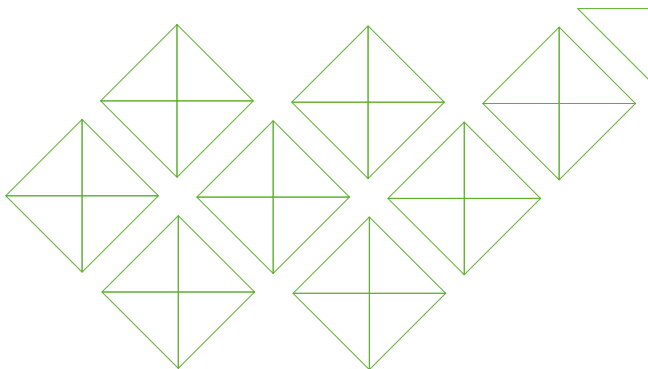
(FINANCIAL) SUSTAINABILITY

Ensuring sound institutional financial, and societal economic, social and environmental health.

The University continues to place emphasis on its (financial) sustainability, even as it embarks on ambitious infrastructural development projects in order to cater for its growing staff and student needs. CUT has a clear set of parameters that are used to manage its financial resources. The University must ensure that: salary costs are between 58% and 62% of the total of grant and student fee income; maximum operating expenditure is kept at 25% of the total turnover; there is a strategic development fund, kept between 3% and 4% of the total turnover; capital and equipment expenditure is kept between 5% and 6% of the total turnover; a minimum of 60% of the total salary bill is allocated for academic salaries, and a maximum of 40% for support services salaries; should the student full-time equivalents (FTEs) increase, there will be a commensurate increase in the provision for new academic staff, and; total CUT bursaries and scholarships increase at the same percentage rate as student fees. These have been agreed to by Council and are being implemented across all key business processes of the University. They help the University to monitor its expenditure in all expenditure areas and thereby live within its means. Council will, with the support of the University's Executive Management Team, ensure that the University works within these parameters in 2016.

There are two major risks to CUT's financial sustainability, namely: increasing student debt, and inadequate financial support to students who qualify for NSFAS loans and those who are just above the NSFAS threshold, called "the missing middle" – ostensibly, relatively too rich to qualify, yet relatively still too poor to afford university fees. It must be understood that a significant number of the students who enrol at CUT would have attended schools in the quintiles 1 to 3, where fees, even at that level, are not expected. All of a sudden, as they enrol at university, they are expected to pay relatively large amounts, because, although government does provide a block grant, our university system is fee-based. The government contributes no more than 65% of the costs of running the University, necessitating that students must contribute the rest. In 2015, 3 355 students were supported via NSFAS loans, leaving 663 that qualified for NSFAS loans, but could not be granted these loans, because we simply had not been allocated enough funding to support all of them. By now, we are all aware that government has done its best in this regard, and that it will continue to fund more NSFAS-qualifying students, and also pay off their debts.

In 2015, CUT set aside R16 446 000 for its own internal financial aid, bursaries and scholarships. This amount may not be significant, but, essentially, it is a contribution from those students who do pay fees. Given that excellence is one of our core values, we also give scholarships and bursaries to top-performing students without questions asked about their social status and family income. South Africa has to engender a culture of supporting and celebrating excellence, regardless of family status and wealth. In 2016, the amount available in this category of funding will be R17 844 000.

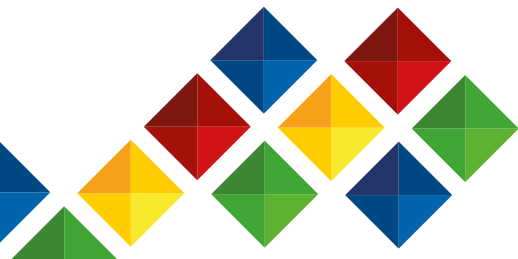


In 2015, the SRC established a Student Financial Support Fund, which is aimed at assisting students who struggle to pay the registration fees and/or to settle previous years' debts before registration. Contributions to this cause now stand at close to R5 million as of the beginning of 2016. These contributions have been made by many internal and external stakeholders, including the SRC members themselves. With this fund being institutionalised in 2016, more contributions are expected from Management and the rest of the staff, alumni and partners. We must single out the Premier of the Free State, whose dedication to supporting the youth of the province is unsurpassed. Early this year, his government made commitments to support hundreds of students who were struggling to register and pay off their debt. This, in addition, to the province's bursary programme from which many of our students benefit.

It is imperative that an overarching financial management strategy is developed, to enable the University to balance the need to manage its growth, while, at the same time, remaining cognisant of the constraints imposed by government grant limitations, tuition costs that must be kept affordable, NSFAS funding gaps and delays, and student debt. This will be done in 2016, including some austerity and cost containment measures we will embark upon. All the members of the University community, including the Unions, are committed to this process and have provided some 'crazy ideas' to this effect.

As mentioned earlier, during the final quarter of 2015, students in higher education around the country mounted a national #fees-must-fall campaign, following the Minister of Higher Education and Training's announcement of a deal to cap the 2016 fee increase at 6%. However, students called for a zero per cent increase in fees for 2016. On 23 October 2015, students marched to the Union Building in Pretoria. Universities were ushered into a completely new and unprecedented era, as President Zuma announced that there will be no increase in fees for 2016. As a result of this decision, CUT was to incur a budget deficit of R22.5 million in 2016.

I am pleased to inform our students, staff and our partners that the Minister has granted CUT the full amount of this deficit; part of it payable to us in January 2016 to help with cash-flow problems. There are universities that will be contributing approximately 30% of their budget deficits from their own funds! The full grant by the Minister suggests that, although we will still have to put some austerity measures in place in a number of areas (such as printing, travel, telecommunications and a number of other services in 2016), the extent of that will not be as severe.



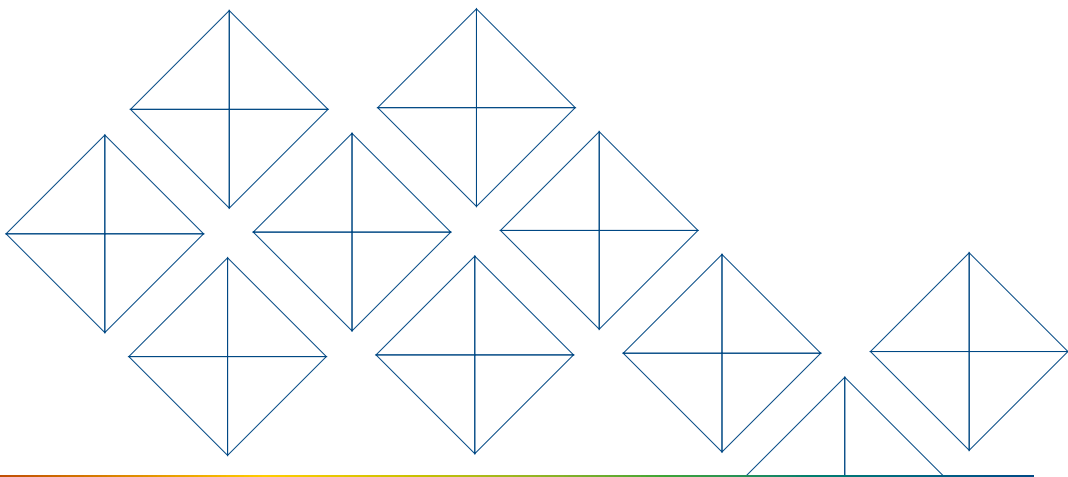
CUT's financial sustainability will not be achieved only on the basis of how carefully we allocate available resources that are increasingly constrained by many economic factors. We have to find strategies to increase our resources. The establishment of CUTIS in 2012 was a step in the right direction. In November 2015, the Board of Trustees appointed Dr Leone Hermans-Blackburn, recruited all the way from the United States of America (USA), as the new Chief Executive Officer (CEO). She joins CUTIS with much experience in innovation and technology management. Since its establishment, we have been able to increase our fundraising income (including our research income, but excluding bursaries) from approximately R16 million in 2011 to R58 million in 2015 – a 259% increase over the period. With Dr Hermans-Blackburn's leadership, we have little doubt that substantial improvements in our fundraising and project income will be realised in 2016 and beyond.



Earlier, we referred to the Science Park initiative and many others in that innovation and technology space. We also referred to spin-off companies from our research and from the entrepreneurial efforts of our students and staff. All of these will soon provide CUT with much needed third-stream income to supplement the government grant and tuition fees, hopefully making the latter more affordable.

In the previous sections, we effectively dealt with social sustainability when we referred to a number of quad-helix engagements and partnerships: at school and post-school levels and towards creating platforms to help to develop our city and region.

We have, since about 2009, been focusing on environmental sustainability. A number of the STEPS programmes actually focus on this given their focus on renewable energy, water and so forth. In a previous section, we referred to research in the Departments of Civil Engineering and Information Technology that focuses on drought prediction. We have, since then, produced a Sustainability Framework and Plan that we revise each year. Other than its focus on research and academic programmes, it also focuses on infrastructure and facilities to ensure there is careful usage of utilities and waste management, amongst others.





LOOKING FORWARD

We have come a long way. As we shift our gaze from the past to the future, we need to pay careful attention to our core business. To do this, we have to further strengthen and focus on the four fundamental pillars of the Implementation Framework that we always keep at the back and front of our collective mind. We call it the Four-Ps Framework: Inspiring **PEOPLE** to excel in discharging their responsibilities; inspiring our people to conceptualise and execute our robust **PLANS**; innovating our **PRODUCTS**; and utilising our **PENNIES** and our resources in a pound-wise manner, in order to deliver quality, innovative and entrepreneurship education.

Associated with this Implementation Framework, we have devised a bespoke Balanced Scorecard (BSC) suitable for universities. It is not only a strategic mechanism, but a review, monitoring and reporting mechanism that ensures that strategies, interventions and actions are balanced. It ensures that there is no inclination towards one perspective of it against other important perspectives. Our BSC suggests that we view our organisation from four perspectives, namely: systems, policies and processes; resources – human, financial and otherwise; stakeholders and partners, with supplementary resources that might emanate from partnerships with these stakeholders, and; quality, learning and growth.

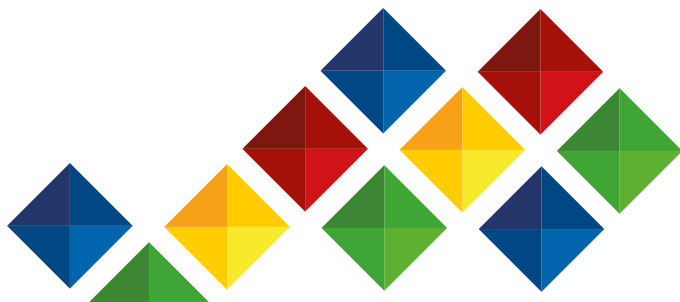
You may be wondering where we are going with all this. The point we are making is a simple one: All around us, our world is on the move; changing rapidly and in unexpected directions. Big and 'crazy ideas' and talented people, driven by passion, hunger or a need for advancement, are fuelling change at an ever-faster pace. Many exciting things are taking place in universities around the world, which are pushing the frontiers of innovation and entrepreneurship education. Some of these universities will help to shape the future in their cities, regions and in their own countries. A few will have a larger global impact.

Here in South Africa, we must not underestimate the speed and impact of the changing landscape and rising competition. We need to ask ourselves if CUT is well-positioned and fit for this fast-paced, competitive and less predictable future. We believe we are. No matter how clichéd this statement is, we have no doubt in our minds that **PEOPLE** are our most important asset, on which we have come to rely for continued excellence in what we do, **to create distinctive and compelling value** for our students, staff, alumni, the broader society, business/industry and government. At CUT, this is not just a cliché, but something the reports we have given above clearly demonstrate. However, we must keep in mind that our University's work is especially painstaking, as we contribute across a long timescale. We do this at a major cost to our country's resources. This requires that we find strategies to contribute meaningfully to the development of our city, region and, ultimately, our country. We need all our stakeholders and partners to join us on this journey of innovation and entrepreneurship.

There is an African proverb that states:

"If you want to walk fast, walk alone. If you want to walk far, walk together."

As innovation and entrepreneurship become even greater forces in economic growth, universities will be the vanguard in producing innovations and nurturing entrepreneurs that can create products, services, economic value, and high-quality jobs. Our challenge is to become involved in this process; to weigh in on how we jump the next curb; to build on the success and momentum of the past five years; and to continue to strive towards excellence as we march gallantly into 2020, where our vision is taking us.







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