



NAMIBIA UNIVERSITY  
OF SCIENCE AND TECHNOLOGY

# Annual Report



2018

# Academic Crest



The parts of the crest either represent national symbols or elements of a unique Namibian landscape and culture. The colours have been selected to represent the national spectrum as influenced by the heritage from the Namibian flag:

**Red:** represents Namibia's most important resource, its people. It refers to their heroism and their determination to build a future of equal opportunity for all.  
**Blue:** represents the clear Namibian sky as well as the Atlantic

Ocean, the country's precious water resources and rain.  
**Gold:** represents life and energy (the sun).

### Parts of the Crest

1. The Atom is one of the most basic recognisable symbols of science. Positioned under the sun it symbolizes science and technology as the foundations of illumination at the university.
2. The Arch is the threshold of knowledge. It is the gateway to the future and encourages a thirst for knowledge and discovery. Namibia becomes the threshold for new development – the entering of a new era .
3. The Ribbon is derived from the diverse traditional cultures of Namibian dress, amongst the Damara, Herero, Himba and Ovambo groups; it is an extension of the red band representing 'people'. It is a symbol of achievement and prestige, and recognizes traditional cultures and the pageantry associated with it. The ribbon epitomises flexibility and adaptability which MUST exemplifies and enables the students to achieve greater knowledge.
4. The Sun represents the outcome of scientific and technological innovation and enlightenment. Education is a form of discovery, energy and life that this symbol should manifest through its embodiment of the sun.
5. The Shield is the symbol of learning institutions (traditional) - signalling tradition, strength and readiness.
6. The red Band represents the people and also blood, which gives life. People are the lifeblood of the university and the country. It refers to their heroism and determination to build a future of equal opportunity for all. The position of the red band represents the 'crossing of the threshold'.

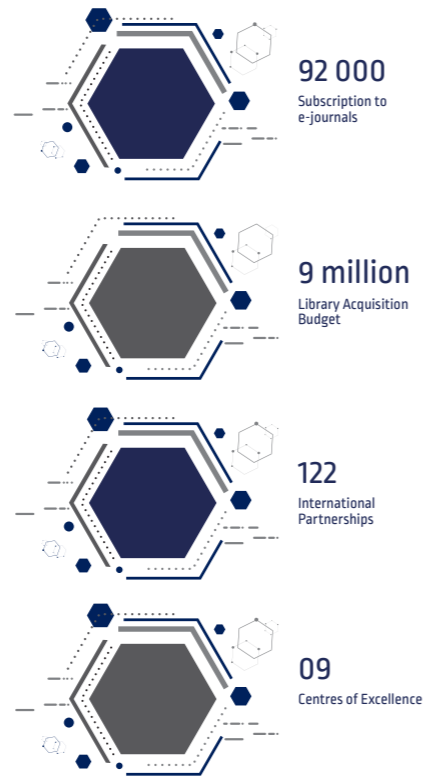
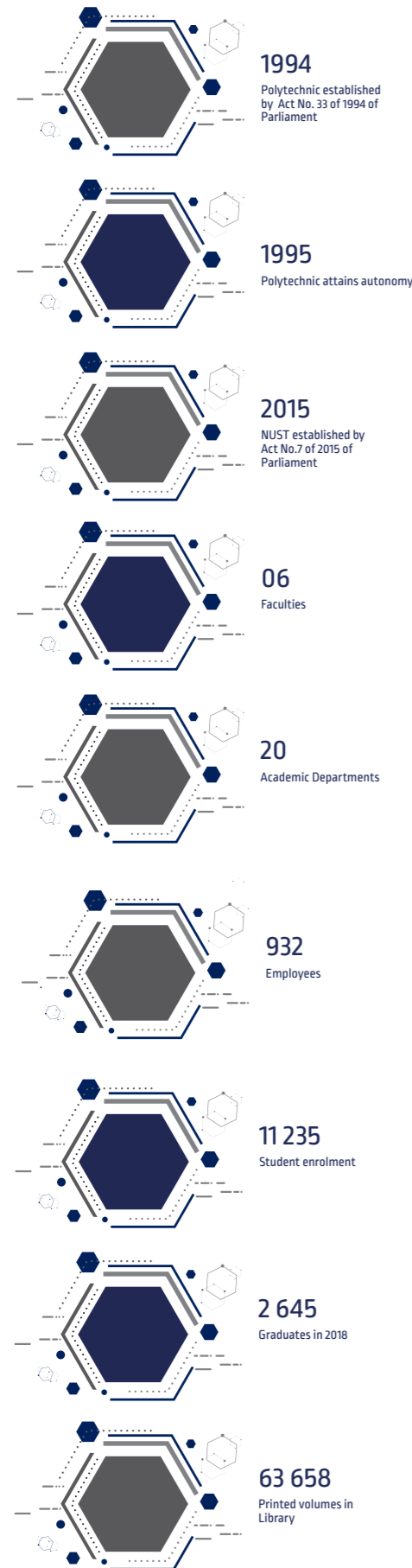
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# List of Abbreviations and Acronyms

ADA	Austrian Development Agency	PDU	Programme Development Unit
APA	American Psychological Association	PGDM	Postgraduate Diploma in Management
BSP	Business System and Processes	PMS	Performance Management System
CED	Centre for Enterprise Development	PMU	Procurement Management Unit
CEU	Cooperative Education Unit	PPE	Property Plant and Equipment
CoC	Centre of Competence	PSP4	Strategic and Transformation Plan – 4
COLL	Centre for Open and Lifelong Learning	PT	Part-time
CREEE	Centre for Renewable Energy and Energy Efficiency	RDM	Research and Data Management
DAAD	German Exchange Service	SADC	Southern African Development Community
DICT	Department of Information and Communication Technology	SACREE	SADC Centre for Renewable Energy and Energy Efficiency
DNA	Deoxyribonucleic Acid	STEM	Science, Technology, Engineering and Mathematics
DM	Distance Mode	SOLTRAIN	Solar Thermal Training and Demonstration Initiative
EAP	Early-Alert Programme	TLU	Teaching and Learning Unit
EMBA	Executive Master of Business Administration	UNAM	University of Namibia
EMC	Emergency Medical Care	USAID	United States Agency for International Development
ERP	Enterprise Resources Planning	VMMC	Voluntary Medical Male Circumcision
FCI	Faculty of Computing and Informatics	WIL	Work Integrated Learning
FE	Faculty of Engineering	WFP	World Food Programme
FHAS	Faculty of Health and Applied Sciences		
FHS	Faculty of Human Sciences		
FMS	Faculty of Management Sciences		
FNRSS	Faculty of Natural Resources and Spatial Sciences		
HGSPF	Home-Grown School Feeding Project		
HP-GSB	Harold Pupkewitz – Graduate School of Business		
HR	Human Resources		
ICT	Information and Communication Technology		
IDL	Innovation Design Lab		
IFRS	International Financial Reporting Standards		
IPT	Institute of Polymer Technology		
ITEC	Indian Technical and Economic Corporation		
ITS	Integrated Tertiary Software		
JICA	Japan International Cooperation Agency		
LIST	Library and Information Skills Training		
LMS	Learning Management System		
MBA	Master of Business Administration		
MLCM	Master in Leadership and Change Management		
MoEAC	Ministry of Education, Arts and Culture		
MoHSS	Ministry of Health and Social Services		
MoU	Memorandum of Understanding		
MOOC	Massive Open Online Course		
NBV	Net Book Value		
NCRST	National Commission for Research Science and Technology		
NEI	Namibia Energy Institute		
NELGA	Network of Excellence on Land Governance in Africa		
NMRC	Namibia Medical Regulatory Council		

# Campus Community in Figures



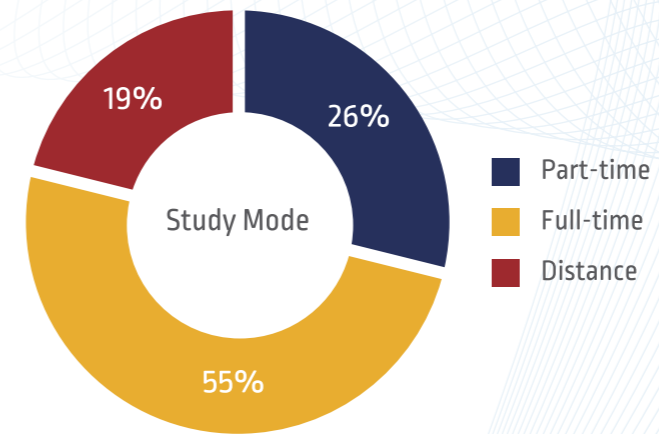
Faculties	Departments
Computing and Informatics	Computer Science
	Informatics
Engineering	Civil and Environmental Engineering
	Electrical and Computer Engineering
	Mechanical and Marine Engineering
	Mining and Process Engineering
Health and Applied Sciences	Health Sciences
	Mathematics and Statistics
	Natural and Applied Sciences
Human Sciences	Communication
	Education and Languages
	Social Sciences
Management Sciences	Accounting, Economics and Finance
	Hospitality and Tourism
	Management
	Marketing and Logistics
Natural Resources and Spatial Sciences	Natural Resources and Agricultural Sciences
	Architecture and Spatial Planning
	Geo-Spatial Sciences and Technology
	Land and Property Sciences

# Enrolment Figures

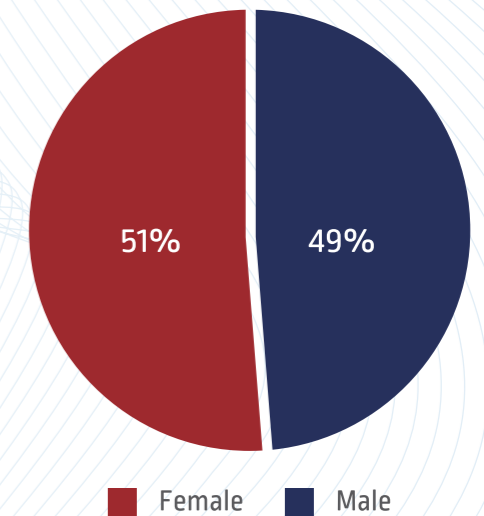
## Overall Enrolment

Faculty	Number			Percentage		
	Female	Male	Total	Female	Male	Total
Computing and Informatics	332	871	1203	6%	15%	11%
Engineering	328	988	1316	6%	17%	12%
Health and Applied Sciences	565	405	970	10%	7%	9%
Human Sciences	859	724	1583	16%	13%	14%
Management Sciences	3010	2089	5099	54%	37%	45%
Natural Resources and Spatial Sciences	439	625	1064	8%	11%	9%
<b>Total</b>	<b>5533</b>	<b>5702</b>	<b>11235</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

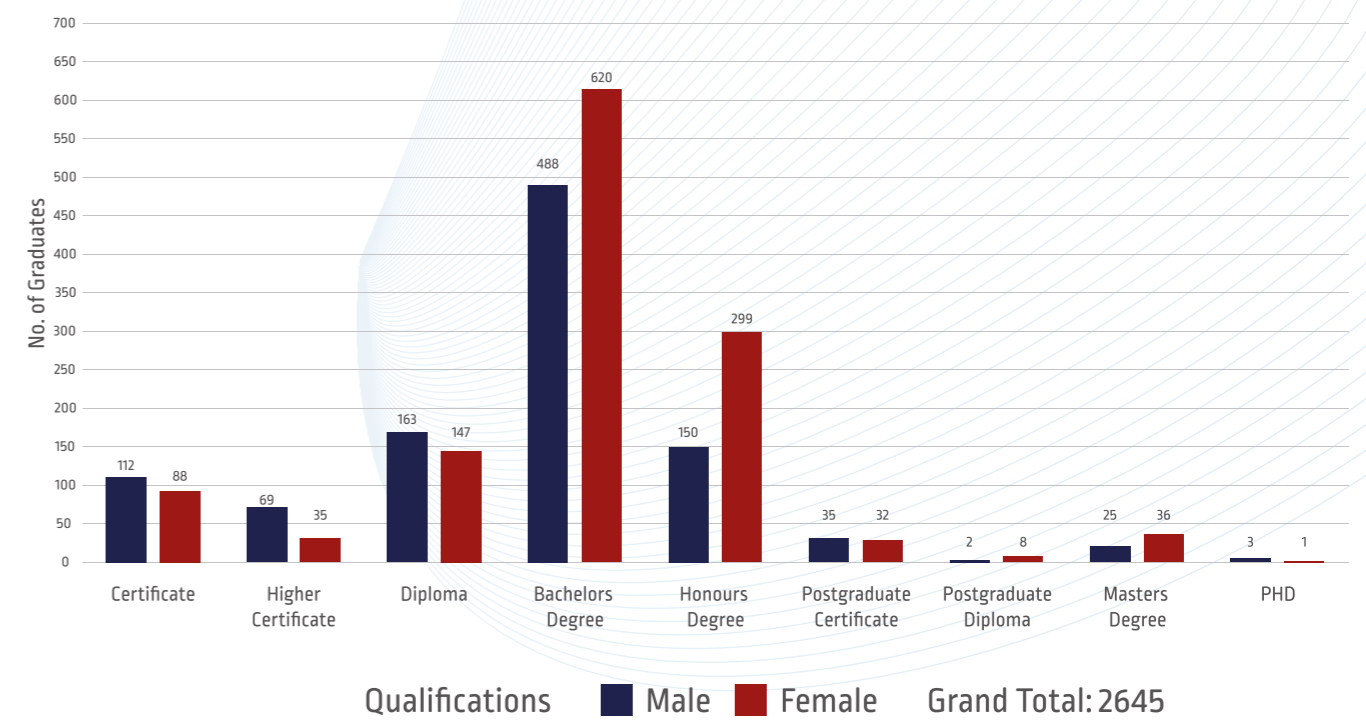
## Enrolment by Offering Type and Gender



## Gender



## Graduation



# Council Chairperson's Foreword

## Building a World-class University

Our vision is far-reaching. The quest to transform NUST into a 'World-class University' is gathering steady momentum, as we continue to place the development of competitive higher education and research systems at the heart of our strategic imperatives. We are making every effort to enhance our capacity and boost our research performance, with the finite resources at our disposal.

We are now on course to achieving excellence in teaching, research and service; creating a dynamic student-centred environment; maintaining ethical, accountable and visionary management; building strong and sustainable partnerships through innovative collaborations, in order to deliver impact for society and to make a distinct contribution to national development.

Our vision is also global. The diverse make-up of students and staff, who come from across the world to study and work at NUST - an indispensable ingredient for building a 'World-class University' - continues to be a source of immense pride and testimony of our commitment to diversity. Our extensive national and international networks with reputable academic and industry partners, continues to benefit the Institution and our nation.

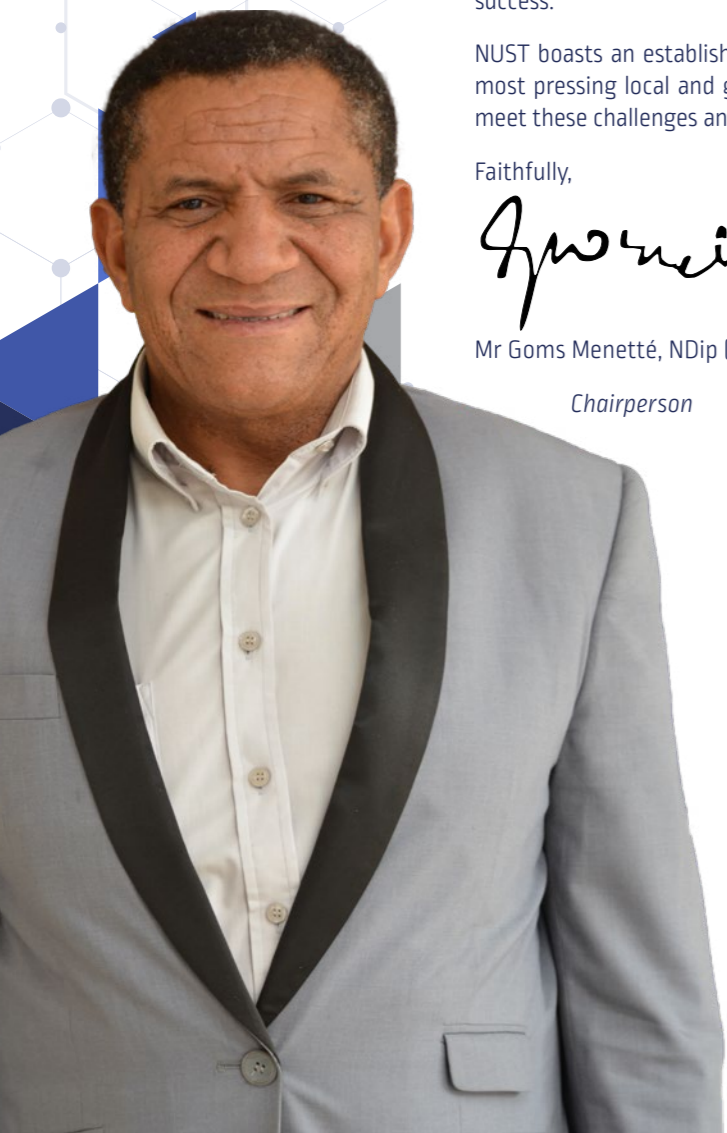
This past year has shown, through the economic, social and cultural benefits that flow from our teaching and research, that the Institution remains one of Africa's leading educational institutions. At NUST we know that our global community – and the partnerships we create – are key to our success.

NUST boasts an established track record in world-leading research that addresses some of the most pressing local and global challenges. We will continue to be ambitious and pioneering to meet these challenges and the opportunities of the future.

Faithfully,

Mr Goms Menetté, NDip (Business Admin), PGD (Mgt Studies), MBA

*Chairperson*



# Acting Vice-Chancellor's Review

NUST has made significant progress in reaching the target to enroll at least 45% of undergraduate students in the STEM fields. More than two-thirds of the qualifications are in Science, Technology, Engineering and Mathematics (STEM) fields, and all of them are benchmarked internationally and some are accredited internationally as well.

It is vital that the wider community is engaged, and to that end students and staff have undertaken numerous community engagement activities, including free mentoring to high school learners, crime prevention, as well as cleaning campaigns to mention a few. The Deputy Vice-Chancellor for Research and Innovation, Prof Pramanathan Govender and the Registrar, Mr Moss Garde, were appointed. They brought with them a wealth of experience and dedication to serve the growing University community.

I will be remiss in my duty by failing to acknowledge the immense contributions rendered by Dr Tjama Tjivikua, Founding Vice-Chancellor, the late Prof Errol Tyobeka, Special Adviser to the Vice-Chancellor, and retired Dr Günzel, Deputy Vice-Chancellor for Administration and Finance. Their legacies will remain inextricably linked with the history of this University to which they committed the best years of their lives.

Today, NUST boasts state-of-the-art equipment and infrastructure to support excellence in teaching, research and service delivery. We offer over 155 internationally recognised qualifications, including 49 Bachelor, 14 Professional Bachelor, 36 Bachelor Honors, 35 Master's degrees, 13 Doctoral degrees, as well as 8 Postgraduate Certificates and Diplomas.

We are living on the cusp of the unfolding 4th Industrial Revolution and a globalised world in which physical boundaries are losing meaning and where transnational challenges call for collective responses. To that effect NUST has further expanded its range of collaborations within the Institution, nationally and internationally, facilitating broad engagements in the quest for social profit. Such collaborations remain central to our modus operandi in pursuit of ambitious research.

We have at least three international partnerships, with one specifically focussed on research, in each academic department. Moreover, we strive for the highest quality through continuous improvement in all our academic programmes, operations, research, activities, practices and services. NUST has a well-defined governance and staff management system, which is supported by a rigorous quality assurance framework at all levels within the University community.

We are very proud that NUST is a truly remarkable place, which offers an unrivaled and encouraging environment for teaching and learning.

Yours faithfully,

Mr Morné du Toit, BCom, BCom Hons, MCom, CA (SA)

*Acting Vice-Chancellor*



# Office of the Registrar



# Office of the Registrar

The Office of the Registrar continued its commitment to serving students across the campus community, as well as actively seeking new opportunities for improvement. Each focus area converges into a nexus to provide a positive learning experience for students from registration to graduation.

The Registrar provides exemplary customer service that is prompt, courteous and exceeds expectations. It's mission is to continually improve service delivery. In this regard, a number of initiatives were implemented to address this:

- Implementation of a current and prospective Student Call Centre staffed by students. This has led to a fourfold increase in response rates to stakeholders, whilst also developing the service and management skills of students employed in the centre.
- A Student Ambassador Programme was launched and a total of 50 student leaders, trained and inducted, are on hand in 2019 to support the university's recruitment efforts off-campus and to assist the Institution on campus by providing campus tours, assisting at events such as graduation, registration and other formal events.
- Professional training of staff is critical for succession planning. In this regard, workshops were held in partnership with institutions such as Dublin City University and McGill University in the area of excellence within University operations. In addition, in-house training for staff was conducted in conjunction with the Centre for Enterprise Development (CED).

The Registrar experienced budgetary challenges, due to revenue shortfalls and proactively sought new avenues to streamline processes and to conserve resources in order to fulfil its critical academic role. Moreover, special attention was focussed on ways and means to eliminate duplication of services across campus and to identify and realise further efficiency gains. This has resulted in the development of a One-Stop-Shop Service Concept, which is under development.

## Faculty Administration

Significant progress was made with the decentralisation of faculty support with half of the Faculty Officers now placed directly within Faculties to support students. This has led to more efficient service provision for students. The academic structure is continuously updated strictly in accordance with Senate resolutions. Paperless Committees were introduced for all Faculties in 2018.

## Assessment Administration

During the year under review we compiled the examination timetables and the management and administration of all formal examinations. Efficient and effective services to students, academics and administrative staff, were done and were provided especially during the June, July, November and January examinations and the April and October graduation ceremonies. A total of 23 642 examinations were organised and approximately 76 000 examination scripts were processed during 2018.



Registrar  
**Mr Maurice Garde**

## Graduation

The NUST certificate contains all the modern security features thereby improving the integrity of the certificates and protecting the value of our qualifications. The Department coordinated and facilitated the generation and distribution of all certificates. Two graduation ceremonies were held. A two-day event in April and a one-day event in October.

## Central Records and Archives

Records and registration processes have been automated and therefore, the role of data and record management has increased dramatically. Due to this evolving role, the section has become a leader in the coordination and archiving of academic and administrative records.

The section is entrusted with the creation, maintenance and preservation of thousands of academic records for current and former students, along with all institutional records. The responsibility for their safe keeping entails both utilisation of leading-edge technologies, as well as secure, multi-layer systems for conservation and retrieval of older records. This conservation and retrieval process has been enhanced during 2018 with further developments expected in 2019.

## Governance and Committee Work

This is an administrative and support section, which provides secretarial services to governing bodies and is responsible for supporting the functions of the institution's governance structures, facilitating and recordkeeping of meetings and decisions, as well as their dissemination. The section has successfully set up an Agenda e-system for Senate, Council and other committees along with an online file management

system for committee files and documents. Agendas are no longer printed, but sent to all members via an online link. Members bring their tablets/laptops to meetings and retrieve the agenda online. As directed by Council, the section is coordinating a full review of all University committee structures emanating from both the Council and Senate.

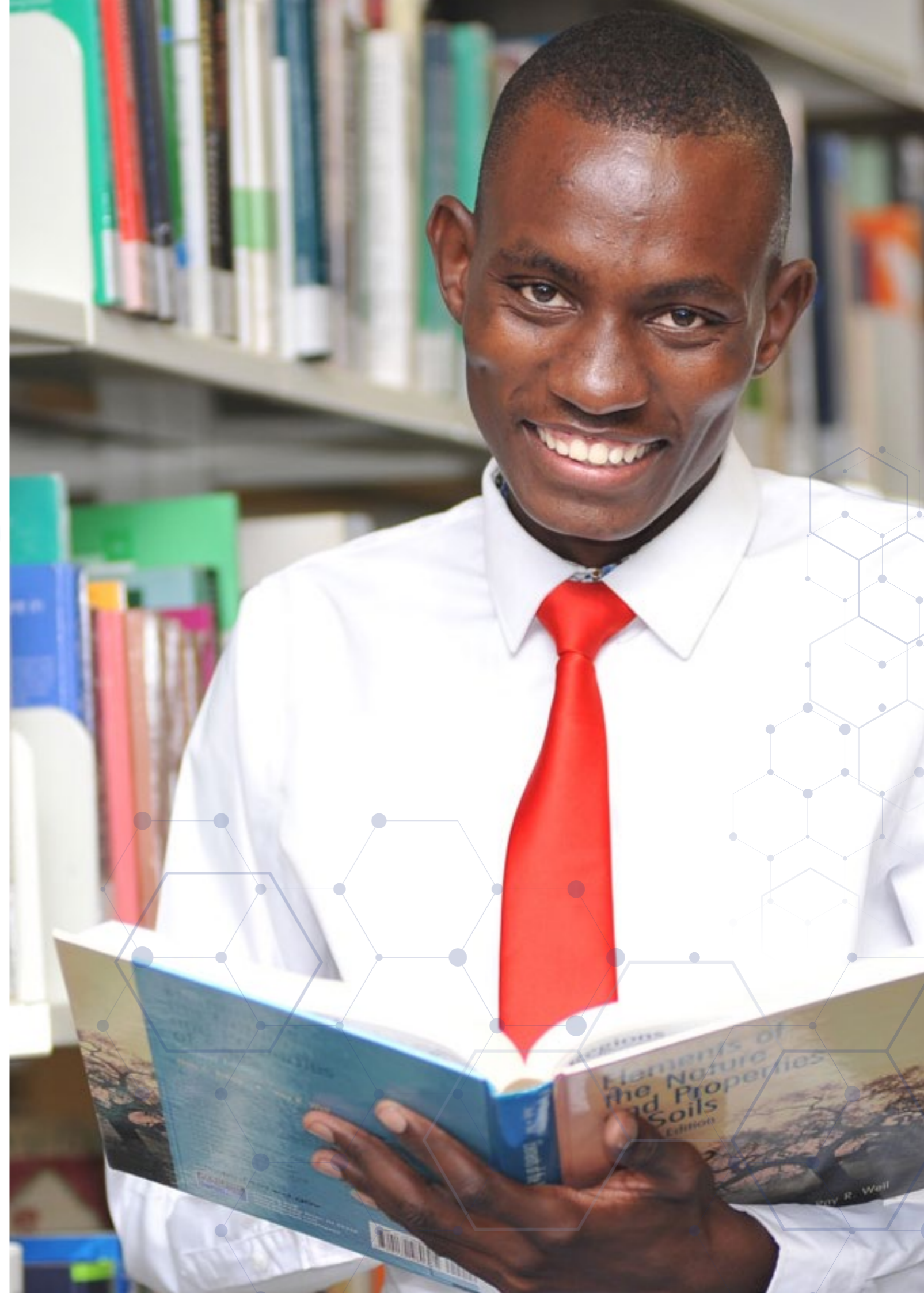
## Institutional Timetabling

The Institutional Timetabling section supervises and coordinates timetabling/scheduling activities within the University. It endeavours to ensure optimal use of all physical and other learning facilities and govern the utilisation of the teaching facilities of the Institution. This section completed a full audit of all teaching and learning facility resources and specialised uses as recorded on the Central Timetabling System database.

## Applications, Admissions and Registration

The section reorganised and redeployed resources to create an Admissions and Recruitment outfit to optimise institutional support for student recruitment. The new team comprises the Office of the Registrar with support from the Communications and Marketing and International Relations departments. The Office of the Registrar and the aforementioned two departments form a critical platform for enhanced service delivery to prospective students.

Furthermore, a situational analysis for the recruitment of both local and international students was completed. The admissions website completed its first phase of development to identify processes and services that can be linked to optimise student support. A core cross-functional planning committee, comprised of key staff members from the Office and the two departments now meet regularly to share the details of major undertakings in order to promote understanding and to identify specific ways to maximise services to students. During the year under review all registrations continued to be completed online, including the registration of first-year students. E-administration was improved by the introduction of automatic communication with applicants via email and sms. Applicants are also able to track their applications on the Student Kiosk. A total of 12 438 applications were received of which 51% were female applicants, while 21% were postgraduate applications.



# Administration and Finance

The Division supports the Office of the Vice-Chancellor with the formulation of appropriate policies and procedures and the implementation of and compliance with Acts, laws, policies and regulations applicable to the University. This ensures transparency and accountable governance. The University complies with and enforces internationally acceptable standards of accountability, responsibility, fairness and integrity. It endorses the principles contained in the King III Report on Corporate Governance, as well as the Corporate Governance code for Namibia and strives to lead and manage accordingly.

The University's sustainability is affected by a wide range of factors, most of which depend on government funding, including the development and maintenance of infrastructure. State subsidy is the largest source of income for the Institution.

## Supply Chain

The Procurement Management Unit (PMU) of the Division remains committed to ensuring complete adherence to the Public Procurement Act No. 15, 2015, by improving the current methods of procurement of goods and services. During the year under review, the emphasis was on the development and maintenance of the vendor database and strengthening the vendor vetting process to better assess their capabilities upfront. Since the operation of the Public Procurement Act is still unfamiliar to majority of the end-users, the PMU will continue providing refresher training workshops.

## Governance, Risk Management and Control Systems

### Internal Audit Function

The University recognises the importance of an effective internal control and risk management system. As such, Management is responsible for the establishment and implementation of adequate internal risk control systems. This process entailed the creation, implementation and update of the Risk Framework at every level of the organisation. The Framework focuses on managing both financial and operational risks. In the absence of an established internal division, the services of Ernst & Young have been procured to carry out the internal audit function until 2020. Towards the end of the current engagement, the Institution will reassess the outsourcing vs insourcing of the internal audit function.

Common to sizeable institutions, the University can be exposed to internal and external commercial crimes that can potentially have operational and financial effects. Therefore, the primary duty of the internal risk management function is to ensure that these factors are properly identified, evaluated and managed in order to achieve the strategic goals of the University.

Ernst & Young consulted the extended Management team widely to gain an understanding of the various risks and their potential impacts, from the strategic down to operational levels. These compilations informed the draft Risk Register and it is due to be presented to Council in the new financial period together with the three-year audit plan.

Acting Deputy Vice-Chancellor:  
Administration and Finance  
**Ms Miriam Dikuua**

## Compliance with International Financial Reporting Standards (IFRS)

The audited annual financial statements for the year ended 31 December 2018 are in compliance with IFRS, including both IFRS 9: Financial Instruments and IFRS 15: Revenue from Contracts with Customers. The Standards have been retrospectively applied for the financial year starting 01 January 2018.

**IFRS 9** – This Standard deals with the classifications and measurement, impairment and hedging of financial instruments. The implementation of this Standard requires an assessment of the financial assets, i.e. student and general debts, investments, bank and cash, contract management, and to correctly record and classify them at fair value in the annual financial statements. Furthermore, a new expected loss impairment model has been introduced, which affected the measurement of the allowance for doubtful debt.

**IFRS 15** – This Standard deals with revenue from contracts with customers and provide information to the users on the nature, amount, timing and certainty of revenue arising from contracts with customers. The Standard requires a separate disclosure on the revenue recognised from contracts with customers and any impairment losses applicable thereon.

## Financial Performance

### Profitability

Given the volatile liquidity of the University during the year, Management placed strong emphasis on carrying out activities that mainly promoted the core mandate of the University, i.e. teaching, learning, research and community service. The other activities were carried out after careful consideration of both the urgency and the availability of funds during that time.

The operating results for each financial year is an indication of the level of dependence on the funding from Government. The amount of funding would in most likelihood determine the operating results at the end of the financial year.

The Council granted a revision of the salaries and employment benefits to the staff during the year. Those on Total Cost-to-Company packages were granted a 7% increase while those in the bargaining Unit were granted a 6% increase with a 1% increase on housing.

	Financial Year		
	2016	2017	2018
Subsidy	388	534	821
Tuition (including registration fee)	225	220	230
Income from Student Residences	13	14	14
Rest of other income	49	39	59
<b>Total Revenue</b>	<b>675</b>	<b>807</b>	<b>1 124</b>
<b>Expenditures</b>			
Employment Costs	(534)	(554)	(650)
Depreciation	(53)	(52)	(71)
Asset Maintenance	(30)	(26)	(19)
Bad Debts and Debt Impairment	(18)	(10)	(14)
Other operating expenditures	(118)	(141)	(120)
<b>Total Expenditures</b>	<b>(753)</b>	<b>(783)</b>	<b>(874)</b>
<b>Net Operating (Deficit)/Surplus</b>	<b>(78)</b>	<b>24</b>	<b>250</b>

Summary of the recorded net operating (deficit)/surplus



### Statement of Financial Position

The total assets of the University increased by N\$ 283 million from 2017 (2016: increase of N\$ 416 million). The balances below are of significance:

	2016	2017	2018
Total Assets	1 615	2 031	2 314
Net Current Assets	55	114	400
Cash and Bank Balances	(21)	119	194
Net Book Value (Property, plant and equipment)	1 345	1 742	1 730

A snapshot of the liquidity analysis:

	2016	2017	2018
Current ratio	1.3 : 1	1.7 : 1	3.2 : 1
Quick ratio	1.3 : 1	1.6 : 1	3.2 : 1
Cash ratio	0.1 : 1	0.7 : 1	1.1 : 1

### Cash-flow/Liquidity

The University managed to maintain a positive cash flow balance through the year and had an unutilised overdraft facility as at year-end.

### Capital Development

Currently the University has two capital projects on its books, i.e. the Parking Garage cum Postgraduate Centre and the development of the Phase 1 of the Kleine Kuppe erf, referred to as the Old Age Home.

The construction on the Parking Garage is at a very advanced stage and Management remains committed to the completion of this project, which is scheduled for 2020. During the current year, the University has spent N\$ 36 million on this project. It is estimated that N\$ 120 million is needed to complete the project, of which N\$ 87 million is earmarked for the 2019 financial year.

No physical construction has commenced on the Kleine Kuppe erf except for expenses incurred for professional services.

### Going Concern

The University needs to maintain a positive cash flow position to continue operating in the foreseeable future. Although there is a significant reliance on Government for continued and sustainable funding, it is the objective of the University to maximise revenue through own income generating activities.

Below is the estimated future funding by Government subsidy, as obtained from the Budget Estimates FY2019/2020:

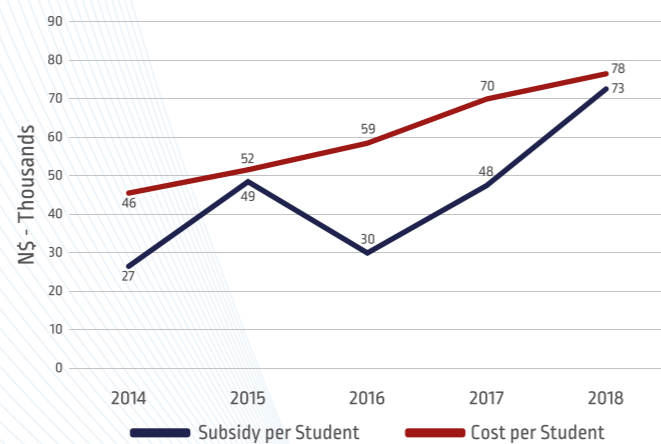
	2016	2017	2018	2019	2020	2021
Subsidy	609	534	600	500	504	506

\* 2020 and 2021 (Estimated)

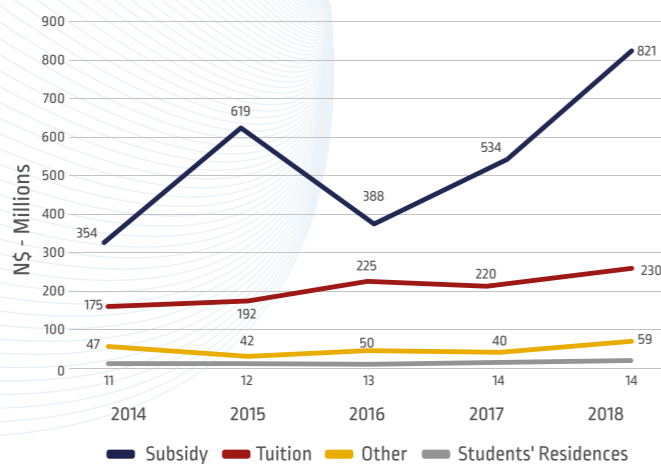
The cancelled N\$221 million from 2016 was refunded in 2018 to the Institution and has been included in this amount. However, the actual amount received in 2016 was N\$388 million.

The audited annual financial statements have been prepared on the going concern basis. Both the Council and Management have confidence that the University will continue to operate as a going concern for the foreseeable future.

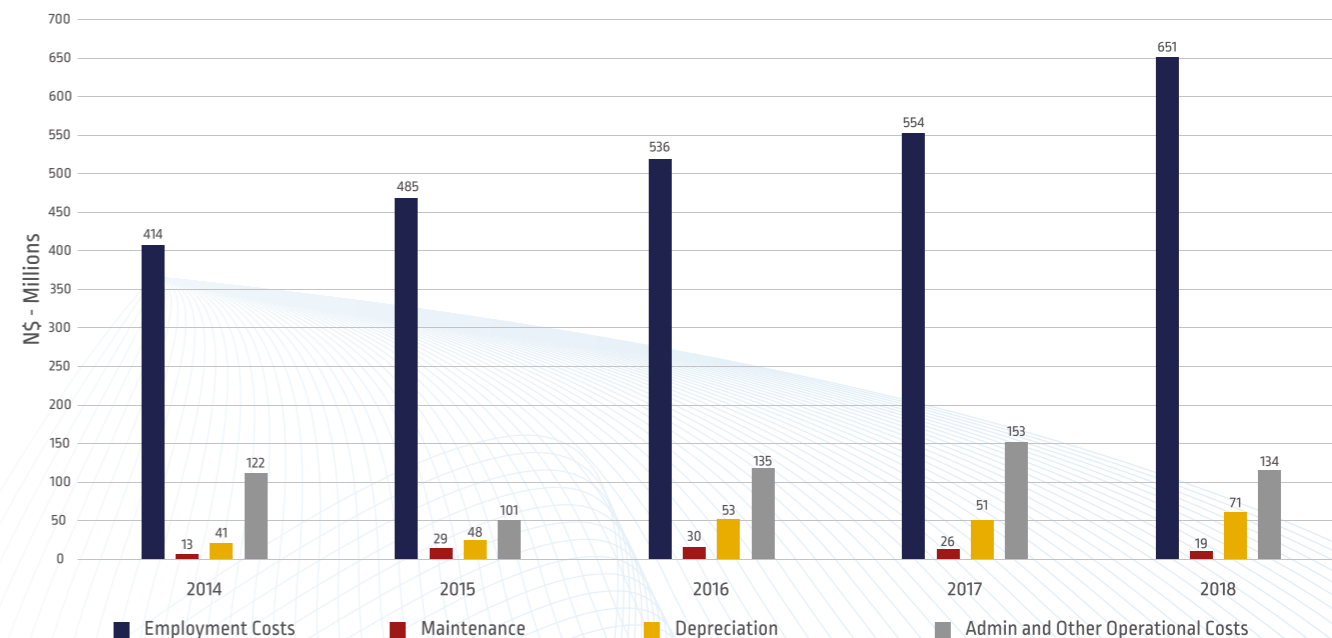
Subsidy per Student vs Cost per Student



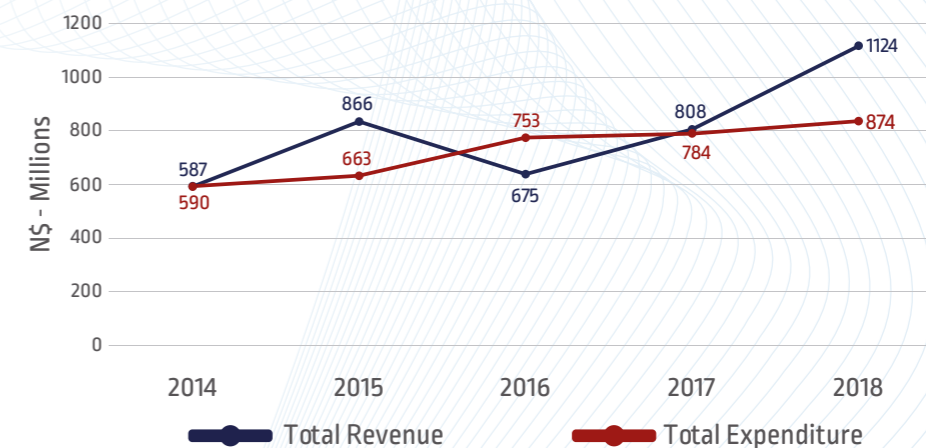
Total Revenue



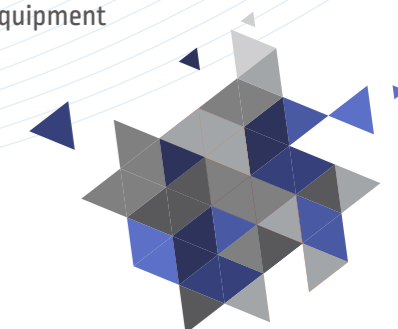
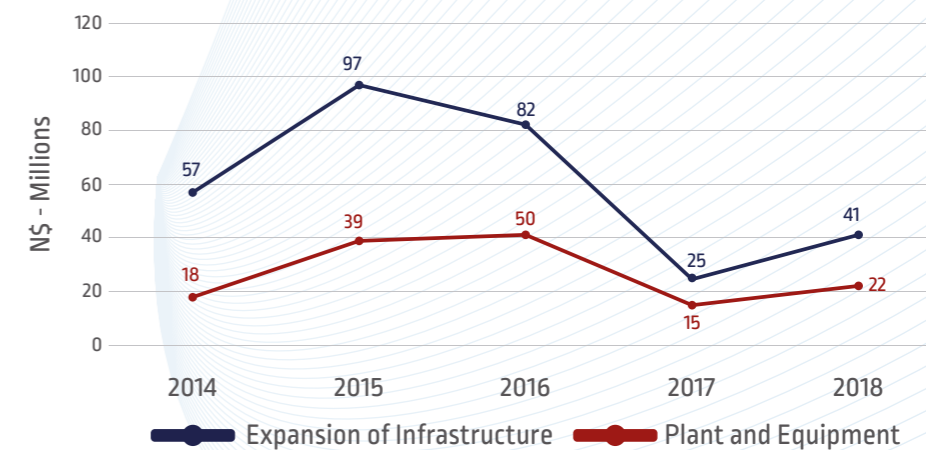
### Total Expenditure



### Operating Results, FY2014 - 2018



### Investment in Property, Plant and Equipment



## Human Resources

While there were many highlights, there were also many challenging times. The HR Department has been successful in providing customer service and catering to the needs of the University, despite an adverse budgetary environment. This will continue into the next fiscal year and plans are afoot to explore new technology options to create operational efficiencies and streamline processes.

There is a planned shift to more innovative approaches and strategies to shape the human capital, enhance employee engagement, evolve employee wellness, and enhance a better working climate, while facilitating performance excellence. During the year under review, the HR Department developed a tailor-made Performance Management System (PMS) for administrative staff.

### Succession Planning

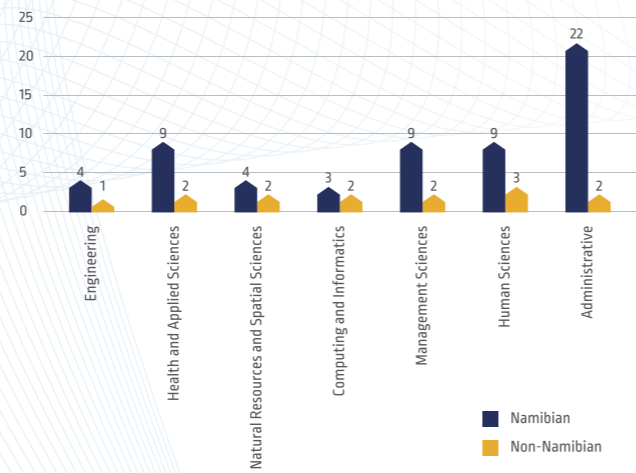
Succession planning in higher education is a new, but crucial component of the human resources strategy to anticipate and make provision for contingencies, such as resignation, retirement, promotion and death. As part of the Talent Management Framework, the HR team led significant efforts to introduce a Succession Planning model and framework for management positions and other critical roles at the University. The benefit of having a succession planning framework in place is that it cultivates internal talent and ensures leadership continuity, while creating career development opportunities for employees. It also helps in the retention of existing talent; decreases the cost of external searches; increases employee commitment, while reducing staff turnover, which can aggravate the loss of institutional memory. To that effect, the HR team has embarked on a job analysis and re-design exercise to ensure that individual jobs are aligned to departmental and institutional objectives and also reviewed the re-alignment of roles to prepare the University for a culture of effective succession planning.

### Staff Recruitment and Retention

New recruitment efforts have been made to increase interest and to elicit more applications from qualified candidates in disciplines such as Engineering, Health Sciences, Criminal Justice and Policing.

The appointment of three executive staff members namely, the Deputy Vice-Chancellor: Administration and Finance, Deputy Vice-Chancellor: Research and Innovation and a Registrar were effected. A total of 42 staff members resigned from the University. This comprises 11 administrative staff (Namibians) and 31 academic staff (22 non-Namibians and 9 Namibians). Furthermore, 3 staff members retired and 2 non-Namibian staff members passed away. The recruitment costs (including the relocation of non-Namibians) amounted to N\$3.8 million for staff at NUST.

Recruitment Figures



A total of 66 academic positions were advertised, nationally and internationally of which 38 were filled by Namibians and 12 by non-Namibians.

Five positions could not be filled due to the scarcity of suitably qualified academics with relevant doctorate degrees, research profile and postgraduate supervision experience.

Thirty-four administrative positions were advertised nationally of which 22 were filled by Namibians and 2 by non-Namibians. Ten remain to be filled.



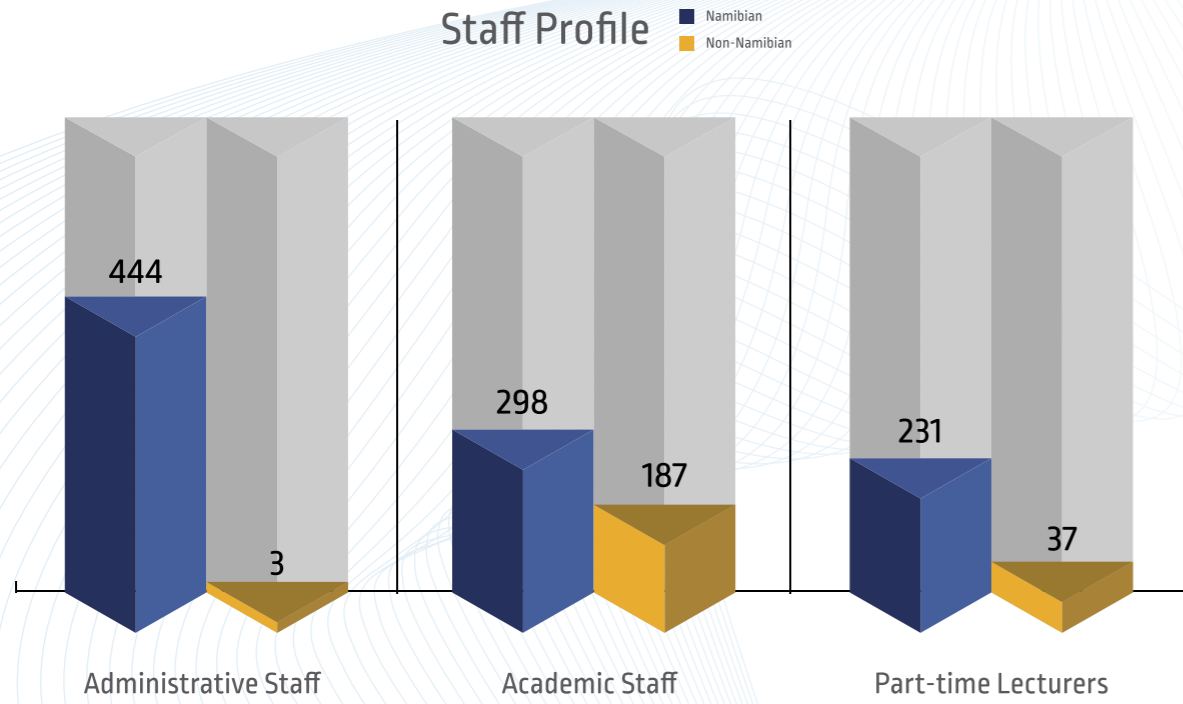
### Promotions

Throughout the year, 22 academic staff members and 7 administrative staff members were promoted to higher positions. Nine academic staff members were awarded professorships. The University held the first series of prestige Professorial Inaugural Lectures, which included 3 professors from the Faculty of Health and Applied Sciences, 3 from the Faculty of Computing and Informatics and 1 professor from the Faculty of Human Sciences.

### Staff Development and Training

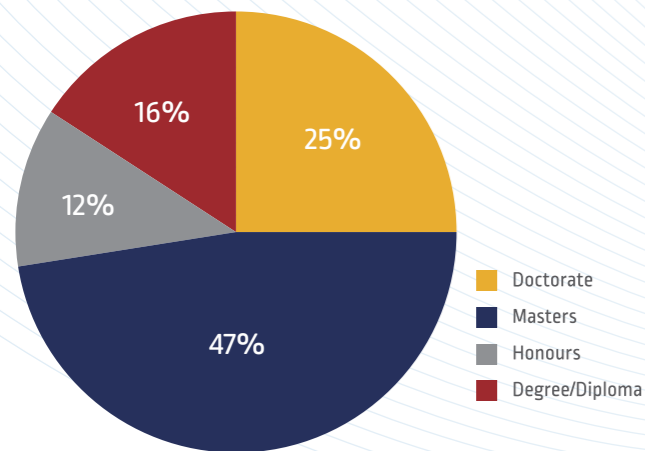
The enhancement of the staff qualifications profile of the University to meet the needs of students, society and the economy, through superior quality education, applied research and innovation remains a strategic imperative for the HR Department. At present, 67 staff members (55 academics and 12 administrative) are pursuing their Masters' degrees and 109 staff members (100 academics and 9 administrative) are pursuing their doctoral studies.

### Staff Profile

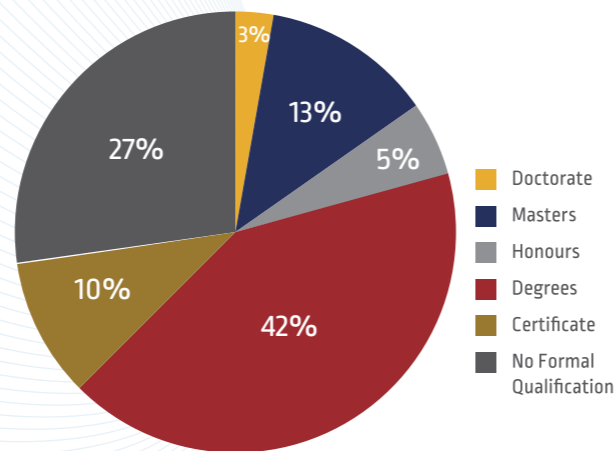


- Staff Profile at 31 December 2018

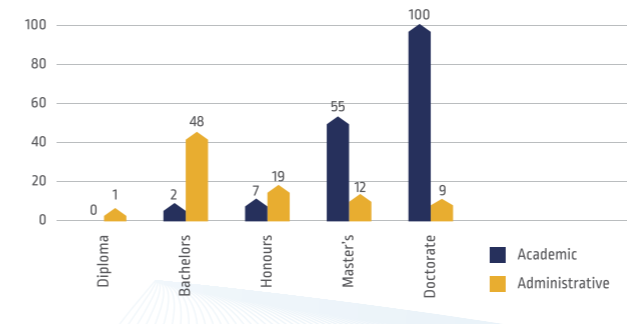
### Academic Staff Qualification Profile



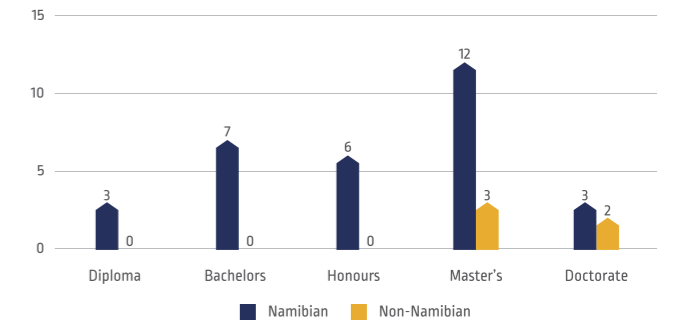
### Administrative Staff Qualification Profile



### Staff Enrolment for Higher Qualifications



### Staff Higher Qualifications Obtained



15 staff members obtained their Masters' degrees and 5 their Doctorate degrees.

### Staff Development Costs

NUST spent N\$7.8 million on staff development to enable staff members to pursue further studies at accredited universities. This includes:

- 32 new scholarships
- Rebate to 151 staff members and their dependants to pursue studies at NUST and University of Namibia (UNAM)
- Study/examination leave

### Staff Wellness Day

The Wellness Day themed 'Colourful Spring,' held in September, at the Suiderhof Primary School Sports field was an engaging, informative and fun-filled event. It enabled employees to meet with different health care providers and participate in various screenings. Different activities formed part of the day, which sought to encourage staff to lead healthier lifestyles.



## Information Communication Technology

### Business Systems and Processes (BSP)

The BSP section continued to provide Enterprise Resource Planning (ERP) services to administrative and academic functions of the Institution. Of note, the latest release of the ITS system, ITS Integrator 4.1, was implemented in December 2018. The ITS Integrator 4.1 user interface included many functionality improvements, while allowing for different views of data to be presented in the form of web pages, resulting in easier access and display of information. This new version will add value to the Institution, due to enriched web-based functionalities. For example, the system will be able to interface with more systems outside the core ITS Integrator scope.

The BSP section further continued to improve the functionality of the Integrator system in line with NUST business processes. The iEnabler (Web) products are now fully accessible via mobile devices, thanks to a new user interface that automatically adjusts itself to cater for screen size and access from mobile devices.

### Networks and Converged Infrastructure

The Networks and Converged Infrastructure section was under serious pressure to keep ageing equipment functional, but fortunately, critical equipment such as the Institution's obsolete firewall, core switches and PABX systems were replaced in 2018. However, 75% of the Institution's desktop switches were discontinued by their vendor in November 2018 and will have to be replaced within the next two years. This state of affairs results in lower network resilience, which increasingly exposes the University to the risk of unplanned downtime, with all the associated negative consequences.

However, in spite of limited resources, the following noticeable improvements were achieved:

#### Internet bandwidth upgrade (Phase II)

The University realised the need to increase funding for Internet bandwidth, since it is the backbone of its operations. In line with world standards that require very high levels of bandwidth for higher education institutions, the total Internet bandwidth of NUST was increased from 600 Mbits / sec to 800 Mbits / sec in November 2018, spread in two equal links of 400 Mbits / sec, for reliability purposes.

#### Fending off attacks

The University did not fall victim to well-advertised ransomware, malware and other virus attacks that plagued the digital world during the year under review.

### Data Centre

#### Campus-wide Data Storage Acquisition

A new HP storage was acquired to replace the ageing EMC institutional central storage device after 6 years of dependable service. As a result, the 'my documents' quota for each NUST staff member was increased from 5GB to 15GB and the departmental shared folders were increased from 15GB to 30GB.

#### Staff Training

The Data Centre managed to send a few staff members for major skills upgrading and training both in Namibia and South Africa.

- Microsoft Identity Management (MIM) : 2 staff members received training in South Africa.
- HP 3PAR Storage Administration: 4 staff members received training in South Africa.
- Microsoft Exchange Server 2016: 4 staff members received training at our Centre for Enterprise Development (CED).

The DICT annual trainee programme was introduced in 1999 to help disadvantaged young Namibians in starting careers in IT. Following one-year intensive internships, that combine on the job training and industry certification, the successful candidates are well-equipped to start careers as IT technicians.

### ICT Support

#### Helpdesk

A total of 4 892 calls, tasks and requests were recorded from January 2018 to 29 November 2018. This averaged 21 calls per day over 46 weeks or 230 working days up to the end of November. Of note is that calls, tasks and requests widely differ in scope and completion time. For example a memory upgrade for a single computer could take a few minutes, whereas the complete re-installation of a lab for students can take weeks for the planning, implementation and validation phases.

#### Replacement of Computers with Virtual Desktops in Labs

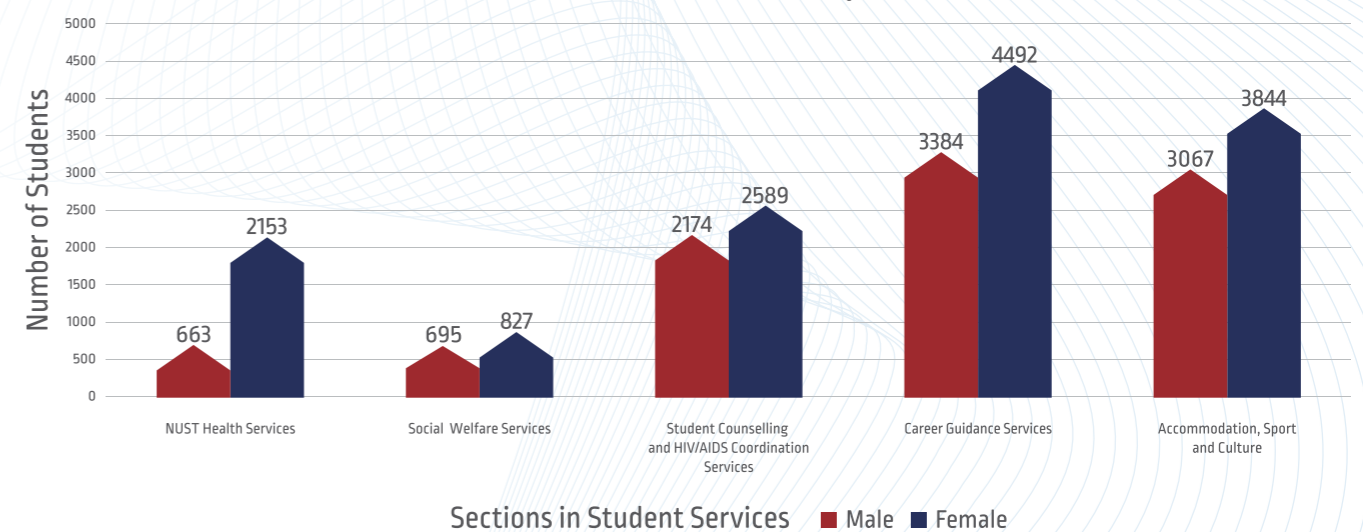
As the host for several hundred computers, the library was a fertile testing ground for the implementation of terminal devices to replace expensive desktop computers. Following highly successful testing, NUST placed its sights on a solution provided by NUTANIX. Hundreds of terminals powered by NUTANIX devices have now been deployed in the library for the benefit of students.

## Student Services

The Health Services Unit successfully obtained the Health and Facilities License from the Ministry of Health and Social Services (MoHSS), as well as the Dispensing License from the Namibia Medicine Regulatory Council (NMRC). These licenses enable the registered nurses to continue delivering important services, such as Pap Smear, breast examinations and Tetanus Toxoid clinics to staff and students. Additionally, the NUST Media and Communications Society, in conjunction with the Department hosted a two-day Mental Health Campaign to promote mental health awareness amongst the University community. The theme of the campaign held jointly with the Mental Health Association and the Bel Esprit Clinic, was titled "If only..."

The Institution focused on male circumcision during the annual HIV/AIDS Campaign, which according to research, reduces infections by 60 percent. It is estimated that about 50 percent of HIV positive youth do not know that they are infected. Popular local musician, The Dogg (Martin Morocky), delivered a motivational speech in his capacity as an ambassador of the Ministry's ongoing Voluntary Medical Male Circumcision (VMMC) campaign. A number of partners made the initiative a success, namely, the Embassy of the United States of America, MoHSS, the Indian Technical and Economic Cooperation (ITEC) programme and Methealth Namibia.

### Student use of Services by Gender



## Facilities

A number of notable achievements and successes were recorded during the year, including:

- the completion and commissioning of new air-conditioning systems in the Library and the Auditorium buildings;
- the construction of new student Internet Hub structures on campus, to enable Wi-Fi connection as well as power sockets for laptops;
- the complete renovation of Johann Albrecht Street Number 8 for occupation by Nature Conservation;
- the refurbishment of the Student Cafeteria;
- renovation of some flats at Poly Heights; and
- the upgrading of drinking water fountains on campus.

## Security

Most of the crime affecting students often takes place off campus, but a few cases were reported on the University premises. Moreover, 8 different gangs of criminals were apprehended successfully. This can be attributed to excellent co-operation between Campus Control and law-enforcement officers, who patrol the vicinity of the Institution dressed in civilian clothing. Moreover, the installation of CCTV has been a success in curbing crime.



# Academic Affairs

We at NUST strive to institutionalise quality assurance as a culture through the offering of quality academic programmes and services. In line with the University's ongoing commitment to excellence, a number of new programmes have been developed in order to make significant and distinct contributions to the development of the country. As the only science and technology tertiary institution in Namibia, the focus of the University is rightfully placed on increasing the numbers of students in the STEM fields.

## Teaching and Learning

Integrating technology in teaching and learning improves services rendered to all students, particularly those studying via distance and part-time modes. Student centeredness remains the cornerstone of strategic initiatives for the University's success. A number of initiatives aimed at promoting student learning and success have been introduced. These include, addressing the perennial challenges of "gate-keeper" courses and remedial interventions such as the Early Alert Programme (EAP). The Cooperative Education Unit (CEU) provided support by hosting a number of students in work preparedness seminars and workshops. The Unit continuously strives to maintain mutually beneficial partnerships with industry. Moreover, a use of blended teaching and learning tools, for example, the Discussion Forums on e-learning, and e-Assessments, were introduced, and have proven to be a great success.

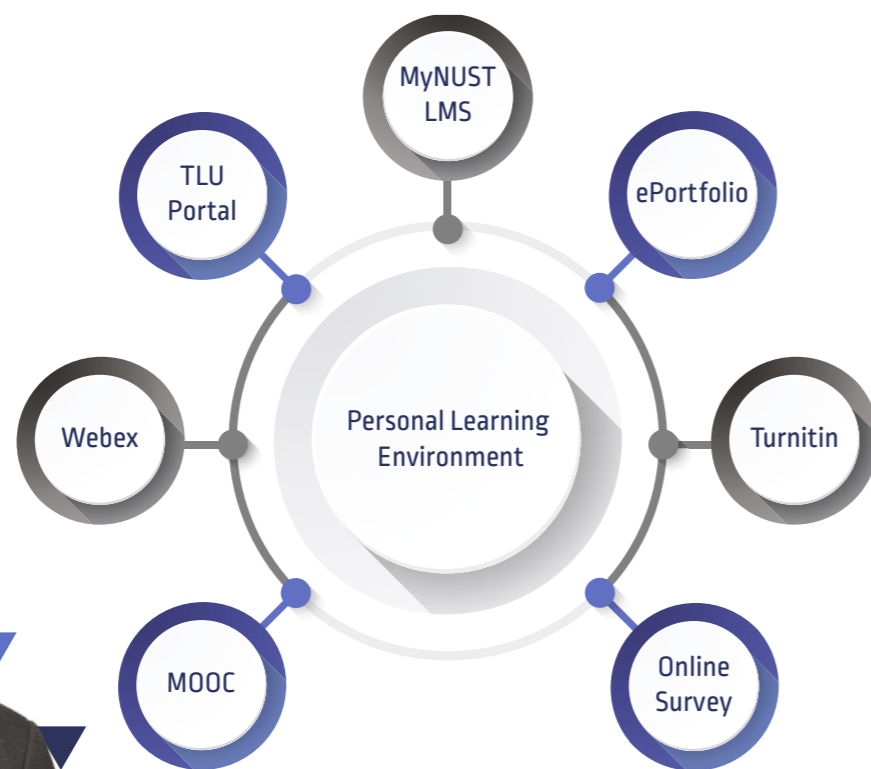


Figure 1: Deployed Technology Solutions

Deputy Vice-Chancellor:  
Academic

**Dr Andrew Niikondo**

## Deployed Technology Solutions for Students

- Moodle is a Learning Management System (LMS) and it has a new component that faculty use to assess students' attainment and progress in learning at any given time during the semester. The system uses the machine-learning module made of artificial intelligence components that identifies students at risk and report back to the lecturers for urgent action. This module represents an innovative tool for early alert of students at risk.
- The Teaching and Learning Unit (TLU), created 63 new online courses.
- The ePortfolio component integrated into the eLearning system, MyNUST, supports students to improve their reflective thinking capacity through writing. This tool is now used for the assessment of a number of courses.
- Turnitin is now fully integrated in MyNUST, eLearning system to detect any plagiarism in students' work. The integration of Turnitin made the use of this similarity-check system easier and more effective for monitoring and evaluation purposes.
- A Massive Open Online Course (MOOC) platform was developed (<http://mooc.nust.na>) to support students developing soft skills that they need in their future careers. TLU uses MOOC for skills development through community engagement.

Furthermore, more attention has been given to students on distance mode of study this year. A tutorial video on the use of e-resources was created, with the support of TLU, and uploaded to the Library website. A PowerPoint tutorial, with voice-over, on the APA citation method was also created to assist distance students. Furthermore, face-to-face sessions were offered twice this year to 151 distance students who were enrolled for English for Academic Purposes. The WebEx sessions piloted with distance students in the regions were not as successful, due to the slow Internet connection.

## Development and Review of Programmes and Qualifications

To ensure effective responsiveness to industry and national needs, new programmes have been developed and some existing ones have been revised. The development of graduate programmes in the Faculty of Human Sciences resulted in the approval of the Master in Journalism and Media Technology, which will be launched in 2019. In addition, the Faculty of Engineering has developed the Bachelor of Engineering: Chemical Engineering and the Bachelor of Marine Engineering. These programmes address key Namibia industry sectors, namely the mining sector and the blue economy, which are identified as key sectors in the National Development Plan 5 (NDP 5). The Bachelor of Marine Engineering was developed as a double-degree with the Satakunta University of Applied Sciences, in Finland.

The Bachelor of Human Nutrition and the Bachelor of Science Honours with specialisations in Applied Biology, Biotechnology, Applied Chemistry and Applied Physics were launched. The Faculty of Health and Applied Sciences has embarked on the process of finalising the development of the Bachelor of Nursing and Midwifery Science (NQF 8), a PhD programme in Mathematics (NQF 10) and PhD in Statistics (NQF 10).

Following the international accreditation by ASIIN e.V. last year, NUST and FH-Aachen signed a MoU for another five years, which incorporates the Civil Engineering Double-Degree programme. The first cohort of six FH-Aachen students were enrolled into the programme. As part of the exchange, four NUST students have been selected to attend the double-degree programme at FH-Aachen in Germany.

## Teaching Excellence

Academic staff that have demonstrated excellent performance in teaching are acknowledged annually through the awarding of Teaching Excellence accolades. The following are this year's winners:

### Institutional Early Career Teaching Excellence Award 2018

Jennilee Kohima - Faculty of Natural Resources and Spatial Sciences

### Institutional Mid-Career Teaching Excellence Award 2018

Geraldo Jansen – Faculty of Management Sciences

## Research Excellence

In promoting research, criteria are set to help to identify and award researchers who excel in research and innovation within the Institution. The Institution's mission is "to promote national competitiveness by providing multiple opportunities for excellent education, applied research, innovation and service." Two categories of researchers, namely, Junior or Emerging Researcher and Established Researcher were introduced. Emerging researchers are holders of Master Degrees or lower, while established researcher are holders of doctorate qualifications.

### Emerging Researcher of the Year

Mr Evert Strydom – Faculty of Engineering

### Institutional Emerging Researcher of the Year

Mr Evert Strydom – Faculty of Engineering

### Faculty Established Researcher:

Professor Heike Winschiers-Theophilus – Faculty of Computing and Informatics

Professor Addai Mensah – Faculty of Engineering

Prof Percy Chimwamurombe - Faculty of Health and Applied Sciences

Associate Professor Ben Strohbach - Faculty of Natural Resources and Spatial Sciences

### Established Researcher of the Year 2018

Professor Heike Winschiers-Theophilus – Faculty of Computing and Informatics

## Harold Pupkewitz Graduate School of Business (HP-GSB)

Focus was placed on enhancing and supporting Master's research with two-fold objectives - to enhance the throughput and to clear the build-up of students in the system, due to non-timely completion of these modules. In the Education Universal (Eduniversal) Global Master's Rankings, the Master in Leadership and Change Management (MLCM) programme continues to enjoy unparalleled attraction in Namibia and southern Africa.

The Graduate School's commitment to offer quality postgraduate business and management education was further strengthened with the launch of a Postgraduate Diploma in Management (PGDM).

### Projects

The University, the Ministry of Education, Arts and Culture (MoEAC), and the World Food Programme (WFP), signed a Partnership Agreement to develop the Home-Grown School Feeding Project (HGSFP). The HGSFP is set to help small holder farmers become more self-sufficient, increase household income while enriching school meals with nutritious fresh foods.

The NUST team will be led by the Harold Pupkewitz Business School, with the support of staff from the Faculty of Natural Resources and Spatial Sciences, Faculty of Health and Applied Sciences and the Namibia-German Institute of Logistics.

### Programmes

The Graduate School continues to host the Master of Business Administration (MBA), Master of Leadership and Change Management (MLCM), Executive Master of Business Administration (EMBA), and the phasing out of the Master of International Business already replaced by the MBA. In addition to this portfolio, the Postgraduate Diploma in Management (PGDipl.M) was launched this year to cater for the market segments excluded by the current offering. The Doctor of Philosophy in Management (PhD) programme still remains in the planning stage.

## Centre For Open And Lifelong Learning (COLL)

The Centre for Open and Lifelong Learning (COLL), adopted new models of technology-enhanced learning and ways of running its operations to provide graduates with cutting-edge knowledge and the right skill-set that will enhance their employability.

### New innovations

A new pedagogic innovation through the integration of iPads in the teaching, learning and assessment for the entire cohort of Emergency Medical Care (EMC) students was introduced. This technology-enhanced teaching and learning method was introduced following the successful piloting of the iPad integration that was facilitated through COLL during the course of 2017 amongst 3rd year EMC students only.

The improvement of the turn-around time of assessments for distance education students, who are served through its footprint of 10 Regional Centres across the country was recorded. This was achieved through a successful piloting of online submission and marking of assessments on the University's Learning Management System (LMS), MOODLE. The Bachelor of Accounting student cohort for 2018 submitted their assignments online and received their assessment feedback and marks online after faculty and tutors were trained to mark assessments electronically on MOODLE. This success resulted in a quicker turn-around time as compared to the traditional, paper-based marking system of the University.

## Library and Information Services

In an effort to engage the student clientele, the use of social media was increased through the Facebook, Twitter and Instagram platforms. Notable campaigns such as the Library Love Letter Competition, examination preparation display and Quotable Heroes from our Digital Namibia Archives (DNA), were highlighted.

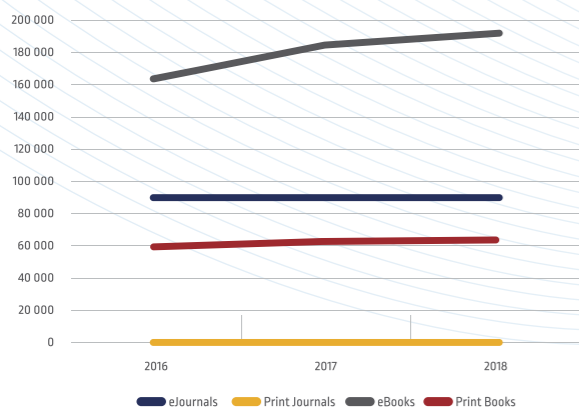
The Research and Data Management (RDM) policy was initiated and a research project on the needs of the Institution was introduced. The RDM concerns the organisation of data, from its entry to the research cycle through to the dissemination and archiving of valuable results. Ultimately, it is geared towards making the research process as efficient as possible, and meeting the expectations and requirements of the University, funders, and relevant national legislation.

### Print Collections

Despite a drop in the acquisitions budget in 2017, the collection still showed slight growth over the last three years. Fortunately, the acquisitions budget recovered in the year under review and is moving in an upward trajectory. It is important to note that the number of items in our print collections is surpassed by a significant margin by our electronic collections, as the department embraces technology in line with the mandate and raison d'être of a University of Science and Technology.

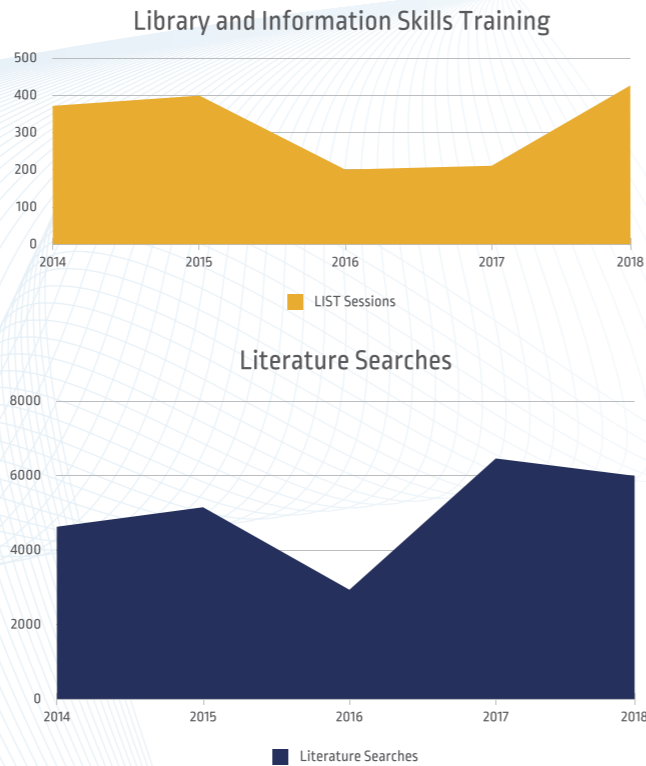
### Digital Collections

The unique digital collections, created by the department, has now grown to ten. It includes, among others, NUST photo and document archives, essential for the preservation of Institutional memory. The need to digitise research output, cultural and historical, and the provision of access to this information, has also led to increased involvement of the department in faculty research projects. Good examples of this are the P3ICL Project and the Inventory of Namibian Historical Buildings. The project aims to focus on Aambo, Ovaherero and the Khoe-khoe indigenous groups producing a repository of cultural expressions such as proverbs, folktales and other scientific and non-scientific awareness raising products aimed at fostering unity in diversity. The project is funded by the European Union (EU).



## Searches

Our Faculty and Research Support section conducts literature searches on behalf of researchers and postgraduate students. It also supports research by offering Library and Information Skills Training (LIST) sessions to students and staff. Over the past five years, the number of LIST sessions has on average increased by 15%, while the literature searches increased by 29%.



As part of a community outreach initiative, the department participated in the Sanlam Blue Ladder Schools project. This project is aimed at assisting high performing public schools with some of their most urgent needs. As part of this project, the Haimbili Haufiku Secondary School in the Oshana Region was identified as the first beneficiary school for the three-year project. To this end, the department collected books from the NUST community and donated 357 books to the school.

### Customer Service

In an effort to improve user experience, the DLIS piloted a Kindness Audit in October to determine how welcoming its building is in terms of access, signage and space usage and what possible obstacles users encounter in accessing and using the Library. The results were mostly positive and insightful and provided us with sufficient data to launch a full Kindness Audit in 2019 while also pre-emptively planning improvements to space and signage based on the preliminary results.

## International Relations

Internationalisation facilitates and promotes benchmarking of academic programmes, teaching and learning practices and administrative services against international best practices. It also supports joint curriculum development and collaborative research with a view to contribute to solving global challenges facing humanity.

The Department of International Relations organised and hosted the International Education Day (IED) where Professor Nico Cloete, Director of the Centre for Higher Education Trust (CHET) and Coordinator of Higher Education Research and Advocacy Network in Africa (HERANA), was the guest speaker. His reflection was on: "Building a World-Class University through Research and Internationalisation".

Professor Yoybrato Mukherjee, President of Justus Liebig University Giessen, one of the key international partner universities of NUST, and his delegation, visited our Institution during the reporting period. Honourable John Mutorwa, Minister of Works and Transport; Mr Ulrich Kinne, Former Deputy Head of Mission, Embassy of the Federal Republic of Germany to Namibia; and Professor Marcus Baumann, President of FH Aachen University of Applied Sciences also visited the University in May. The purpose was to witness the official handover of a certificate to NUST on behalf of the European Accreditation Commission for Engineering Programmes.

The European Accreditation Commission for Engineering Programmes through ASIIN e.V. has certified and accredited the NUST Bachelor of Engineering Programme. The programme satisfies the criteria for Bachelor's degree programmes, specified in the European Accreditation of Engineering Programmes Framework Standards for the period 31 March 2017 to 30 September 2022.



## Cooperative Education

### Enhancing Employability

The Cooperative Education Unit (CEU) spearheads the University mandate of building partnerships with industries and community. The Unit engaged in the various activities such as facilitating WIL placements opportunities for students, Pre-WIL work readiness and Career Starter Week workshops in collaboration with B360 Education Partnership. Twenty-three partnership agreements with the local industry resulted in the placement of 736 students in various companies. 559 students attended the Pre-WIL work readiness programme and Career Starter Week workshop in collaboration with B360 Education partnership.

Additionally, through a six-year partnership project collaboration with the Hochschule Wismar of Applied Sciences (HWAS) and a third partner, Vaal University of Technology (VUT), NUST hosted the Conference "Join Forces-Tapping Youth Employability Opportunities" under the theme 'Work Integrated Learning, Vocational Training and Entrepreneurship'. The objective was to create a platform for academia and practice, for all education stakeholders (industry, university, students, public sector institutions and TVET sector) to learn and share experience on how to tap into youth employability opportunities. Moreover, the conference deliberated on initiatives, programmes, approaches, processes, modalities, frameworks and quality assurance needed to raise youth employability.

Furthermore, the collaboration between Japan International Cooperation Agency (JICA) took an important step forward. The Employability Improvement Programme was launched and training materials worth N\$250 000 were received from JICA. Prior and subsequent to receiving the training materials, staff and students training were conducted. The project aims to equip students with relevant soft and applied skills that will enhance their employability in the highly competitive labour market.





## Quality Assurance

### Programme Accreditation

The following six academic programmes were assessed by independent review panels constituted by the National Council for Higher Education (NCHE), Diploma in Geomatics (NQF Level 6); Bachelor of Geomatics (NQF Level 7); Bachelor of Regional and Rural Development (NQF Level 7); Bachelor of Logistics and Supply Chain Management (NQF Level 7); Master of Agribusiness Management (NQF Level 9), as well as the Master of Natural Resources Management (NQF Level 9). The outcome on the accreditation status of these programmes is still pending.

### Programme Accreditation Awards

A further twelve academic programmes were granted accreditation status by the NCHE and include:

- Bachelor of Geoinformation Technology Honours (NQF Level 8);
- Bachelor of Agriculture (NQF Level 7);
- Bachelor of Agriculture Honours (NQF Level 8);
- Bachelor of Engineering in Metallurgy (NQF Level 7);
- Bachelor of Criminal Justice in Correctional Management (NQF Level 7);
- Bachelor of Engineering in Mining (NQF Level 8);
- Bachelor of Human Resources Management (NQF Level 7);
- Bachelor of Human Resources Management Honours (NQF Level 8);
- Bachelor of Marketing (NQF Level 7);
- Bachelor of Marketing Honours (NQF Level 8);
- Bachelor of Computer Science Honours (Mobile Development) (NQF Level 8), and
- Bachelor of Computer Science Honours (Software Development) (NQF Level 8).

### Institutional Quality Day

The first-ever Institutional Quality Day (IQD) was held under the theme "Quality Matters in Building a World-Class University." The event is a platform to celebrate how far the Institution has come in upholding quality standards, befitting a world-class university.

## Programme Development

To ensure that the University is responsive to industry and national needs, technical guidance and support was provided to academic departments to develop and review programmes that match the current industry and academia trends. The development of various programmes and resultant qualifications is indicated in the figures below:

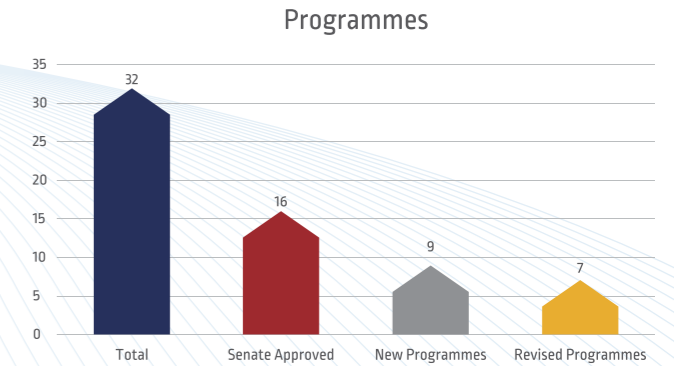


Figure 1: Programmes coordinated by PDU

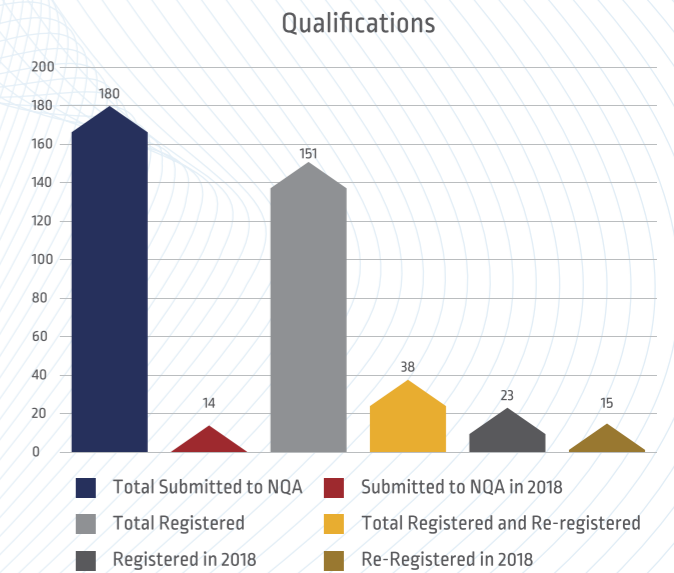


Figure 2: Qualifications coordinated by PDU

# Research and Innovation

This division came into existence this year, necessitated by the collective drive of the university to give momentum to research and innovation. Soliciting and managing external funds has become critical to meeting the Institutional vision to strengthen research development activities. The Office oversees the following departments, sections, units and institutes: Department: Institutional Planning (IP), Project Services Unit (PSU), Department: International Relations (IR), Department: Communications and Marketing (DMC), Namibia Business Innovation Institute (NBII), the Namibia Energy Institute (NEI), the Innovation Design Lab (IDL), as well as FabLab.

The Project Services Unit (PSU), which falls under this division, is strategically placed to increase the acquisition of third stream research funding and ensuring minimal legal, financial, ethical and reputational risks to the Institution.

## Resource Mobilisation Efforts

A total of 33 grant applications were submitted in collaboration with faculties, centres or institutes to the amount of approximately N\$ 763 million, of which the Institution's contribution was N\$ 170 million. Of the 33 grant applications, 9 were successful, 9 unsuccessful and 15 are still pending. The secured funding from the 9 successful projects amounted to N\$ 16 million.

## Grants Management

The total number of active projects are 51 with a combined total project value of N\$ 512 million. The grants are classified and managed according to the defined institutional niche areas, namely: Sustainability, Technology, Energy and Indigenous Knowledge. Noteworthy is the fact that many of the project themes are cross-cutting, which promotes interdisciplinary and transdisciplinary research.

## National Research Funding Landscape

The National Commission for Research, Science and Technology (NCRST), committed a total of N\$12 million to two projects entitled: A Water Secure Future: Building Climate Smart Cities in Namibia and the Namibian Energy Fuel Mix and its implications for climate variability and sustainability. The continuity of these projects is dependent on the availability of funds. These projects are of national importance and aligned with the National Programme on Research, Science, Technology and Innovation strategy on building research capacities, infrastructure and technical skills, while creating research groups with a critical mass of expertise to guarantee the strength and sustainability of the research and innovation system. The projects will be implemented by the Faculty of Engineering.



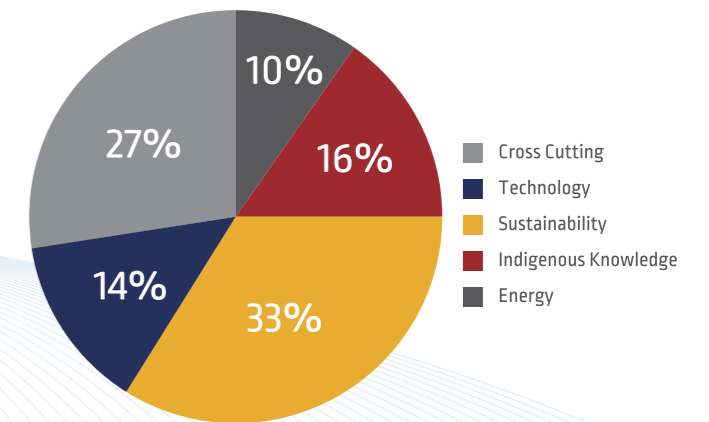
Deputy Vice-Chancellor:  
Research and Innovation  
**Prof Pramanathan Govender**

## Research Grant Opportunities

It is becoming increasingly evident that there is a shift in donor funding trends from supporting 'laboratories' (i.e. capital projects) towards rewarding researchers to make the link between science and society addressing 'real-time' challenges. Furthermore, it is important to note that donors more frequently require co-funding or sustainability strategies to be in place to ensure ownership and continuity beyond the donor funding. Funding opportunities were primarily in the climate change, agriculture, and technology fields, with emphasis on the science-policy-development interface.

NUST witnessed an increase in the number and quality of research funding proposals. Research funding has also increased, including significant improvements in the administration of research funds. The future outlook is strongly geared towards promoting the development of a vibrant research community, and to improve both the quality and quantity of research outputs. Strong emphasis will be placed on supporting the involvement of post-graduate students in research grant implementation, which will significantly enhance institutional research capacity, and ultimately impact research.

## Research Focal Areas



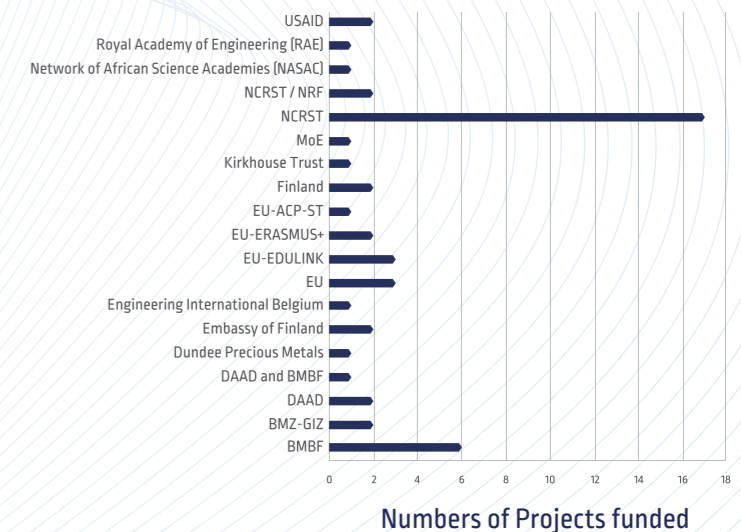
The spread of projects across the focal areas.

## Projects

Key research clusters, projects and platforms in line with national priorities were initiated. For example, the Faculty of Natural Resources and Spatial Sciences initiated the Co-designing conservation technology for monitoring of biodiversity in the Skeleton-Coast Iona Transboundary Conservation Area, commonly referred to as SCIONA project. The project is managed in partnership with the Faculty of Computing and Informatics and the Higher Institute of Education Sciences (ISCED) in Angola. The European Union funded SCIONA to the tune of N\$ 16 million. Other high profile research projects include:

- USAID-Namibia DREAMS project, funded to the tune of N\$ 8 million, over five years.
- OPTIMASS (Impact of land management on biodiversity and ecological feedbacks) with Potsdam University – funded by the German Federal Ministry of Education and Research (BMBF).
- Adaptation of agriculture to climate change in Northern Namibia (ACN) - funded by GIZ.
- NELGA (Network of Excellence for Land Governance in Africa)

## Donors



The donor profile of third party funded projects are illustrated.

# Innovation



*The Innovation Design Lab (IDL) is a multi-disciplinary centre of research excellence, whose tangible outcomes seek technological solutions to Namibian and African developmental challenges. Innovative and indigenous solutions to industry's problems are designed, prototyped, and prompted for market-readiness by tapping into the creative opportunities resulting from the advances in science and technology to learn by morphing problems into challenges, and challenges into opportunities.*

The Centre is committed to fostering the Triple Helix of University-Industry-Government interactions, as the key to innovation in knowledge-based societies. As the creation, dissemination, and utilisation of knowledge moves from the periphery to the centre of industrial production and governance, the concept of innovation, in product and process, is itself being transformed. In its place is a new sense of 'innovation in innovation', which refers to the restructuring and enhancement of the organisational arrangements and incentives that foster innovation.

The Innovation Design Lab (IDL) has further expanded its range of collaborations within the Institution, nationally and internationally by facilitating broad engagements in the quest for social profit. Such collaborations remain central to the Centre's modus operandi in pursuit of ambitious research. The IDL has signed memoranda of understanding and shared intellectual property agreements with two institutions, the Institute of Polymer Technology (IPT), Germany and the University of Johannesburg (UJ), South Africa. In the past 4 years over 70 students, who have been interns at the Centre, have successfully graduated from their programmes of studies. The IDL has also witnessed significant advances in interdisciplinary inquiries. Six research projects have gained recognition and progressed successfully, rewarding our focus on innovation with social impact. In terms of frugal or grassroots innovation the IDL has been able to design, implement and improve upon technological hybrids through rapid prototyping cycles.

## Solar Electric Taxi

The Namibia University of Science and Technology (NUST) has started a cross-disciplinary research project to develop a Namibian Solar Electric Utility Vehicle (NSEUV), or solar taxi. The ultimate goal is to manufacture the taxis in Namibia and South Africa, with the support of international partners. The second prototype of the Namibian Solar Electric Utility Vehicle, NSEUV2, is 60% finalized and is expected to be completed in 2019. The prototype is designed to transport four adults with a maximum load of 320kg. Solar energy is collected on the taxi's roof and stored in lithium batteries at the back. The batteries allow a driving range of 100 km before having to be swapped with freshly-charged batteries. The taxi has a top speed of 55 km per hour.

## Solar Still Desalinator

The Solar Still Desalinator produces drinkable water with solar energy for off-grid communities. In the past 24 months, 7 prototypes have been designed, fabricated and tested. The efficiency has been increased from 3% to 47%, and the cost per cubic metre has been decreased from €23 to €5.20 (Euros). This project is a collaboration with the Institute for Polymer Technology (IPT) in Germany and the UNESCO Chair on Sustainable Water Research for Climate Adaptation in Arid Environments. Two patents have been registered by IPT, while one paper has been published.

## The Micro-Irrigation Technology

A total of 200m of micro-irrigation technology has been installed on a Namibian farm for further testing. The Micro-Irrigation Technology aims to increase vegetable production using less water. A field test in Ghana has demonstrated a 90% water saving, compared to surface drip irrigation, and 20% extra yield in produce. The technological development of the system has been finalised. Furthermore, the water filter made of Moringa-Sand-Charcoal has proven to be a sustainable potable water depurator and was designed through applied cross-disciplinary research. One of our Master's degree candidates is in the process of designing a third prototype, a point-of-use water purification device, whilst its construction and testing is due for mid-2019.

## Hydrogen Alkaline Electrolyzer

The IDL has also embarked on the small-scale production of Hydrogen with an alkaline electrolyzer, designed with local material and low-cost technologies, suitable for different applications i.e. heating, cooking, lighting, storing energy, or extending the driving range of electric vehicles. The project is a collaboration with Hochschule RheinMain, Germany.

## Electricity Generation Project

The Electricity Generation Project is a grass-roots innovation project hosted by the IDL. Two Namibian inventors aim to produce electricity from local materials. The project has gained significant recognition in the industry sector and government. Further experiments, to launch a fully functioning prototype, are in progress.

## Energy

The Namibia Energy Institute (NEI) was instrumental in launching the Southern African Development Community (SADC) Centre for Renewable Energy and Energy Efficiency (SACREEE) in October. The NEI participated in an exhibition through demonstrations on the use of renewable energy and energy efficient technologies i.e. the Solar Water Heater trailer and the Energy trailer. The aim of the exhibition was to demonstrate a number of initiatives of NUST in renewable energy and energy efficiency technologies for domestic and industry purposes, including solar home systems and the solar taxi prototype.

The Austrian Development Agency (ADA) financed the successful Southern African Solar Thermal Training and Demonstration Initiative (SOLTRAIN) project in Namibia, which is coordinated by the NEI. The Institute financed the construction of three research houses (design rigs) that were constructed and insulated, using different locally available materials in Namibia.

One rig was constructed and insulated with agricultural waste made of rice hulls, maize husks, millet hulls and cow dung. The second rig was insulated with marble dust and the third rig was constructed with cement without insulation. The concept will provide recommendations on local available insulation materials that can aid in constructing Energy Efficient Buildings, such as the Energy Efficient Building of Namibia (EEBN).

## Solar Water Heater and a Photovoltaic

NUST is also involved in conducting a techno-economic analysis and comparative study between the Solar Water Heater and the Photovoltaic (PV) Water Heater. A researcher from the Centre for Renewable Energy and Energy Efficiency (CREEE), a lecturer from the Department: Electrical and Computer Engineering at the University and two persons from the solar industry attended a specialised course for professionals on Solar Cooling and Air Conditioning at Stellenbosch University.

The aim of the course is to present and strengthen the capacity of industry and academia on the design and installation of advanced, high quality solar thermal systems for industrial applications. The concept on SOLTRAIN IV, which will run from June 2019 to 2023, was prepared and submitted to ADA for approval.

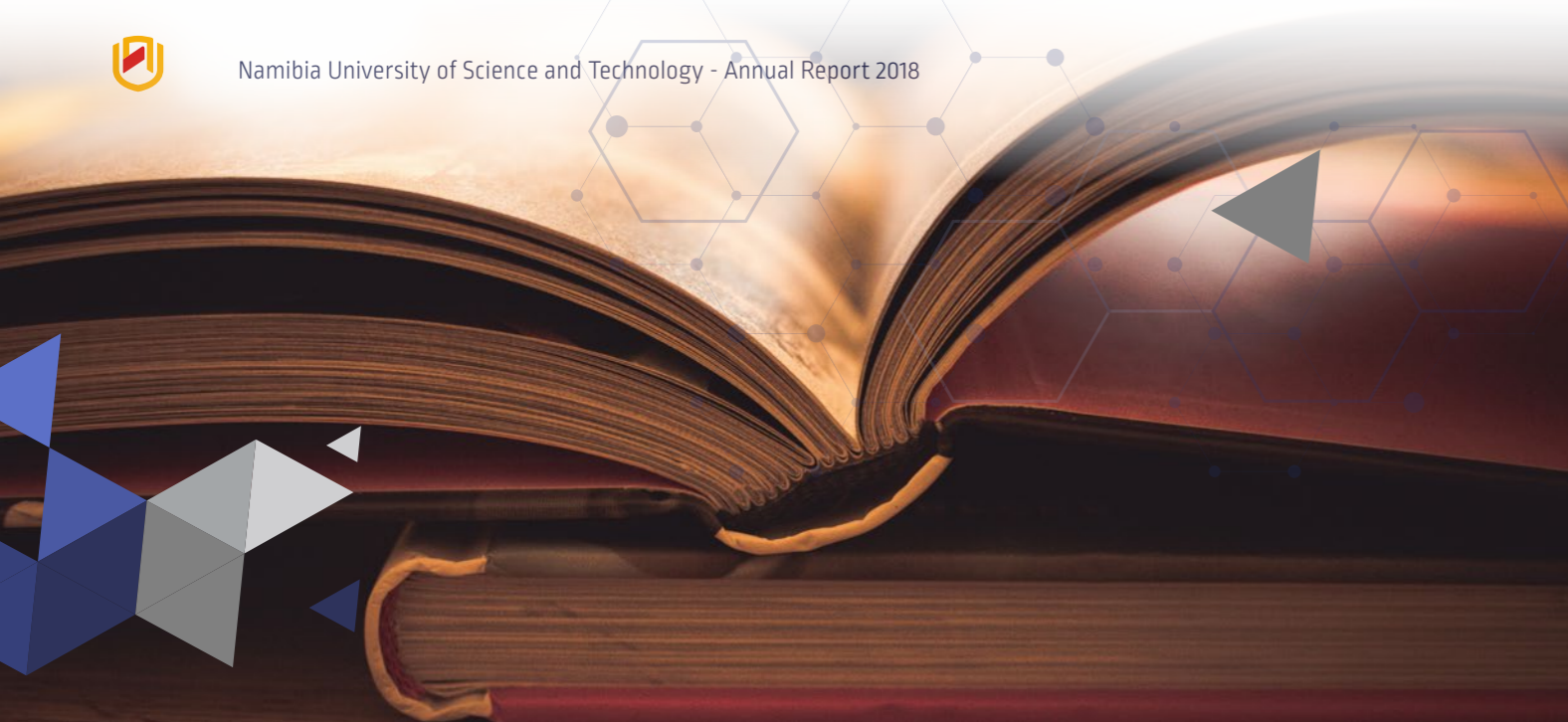
Meanwhile, Namibia has been included in the World Energy Council Energy Trilemma publication of October. CREEE is collecting Renewable energy data, which include solar water heaters, on- and off-grid solar photovoltaics, including solar pumps, while Cost Engineering Services (CES) collects data on electricity and biomass. A tender was issued to obtain the services of a qualified consultant to draft a State of Energy report.

## Research Output

	2013	2014	2015	2016	2017	2018
Journal Articles	53	69	57	121	61	83
Conference proceedings	43	49	85	147	145	140
Book chapters	6	4	0	11	24	67
Books	2	2	6	3	9	13
Total	104	124	147	282	239	303
Per Capita	0.3	0.3	0.4	0.8	0.6	0.6

The total publication output across Faculties has increased by a margin of 0.33% in 2015 and 0.50% by 2016 and went down by 0.25% between 2016 and 2018.





## Professorial Inaugurations

The Namibia University of Science and Technology has once again made history with the Conferment of full Professorships on seven members of its Faculty in 2018. The Inauguration of Professors is a public ceremony where newly appointed professors are installed in office by the Vice-Chancellor and deliver their inaugural address and lecture.

The Inauguration serves two purposes. One is an expression of welcome, a reception for new professors joining the circle of colleagues. The second, and most important, is to showcase the subject area of each new Professor in the form of a research report or an official lecture given as part of the investiture.

The new Professors should have an ongoing research record, which is characterised by a significant influence on the field of study, and is of a high order of excellence and of international standing, and the quality of which in terms of research distinction is at least equal to that expected of those appointed to full professorships at other leading international research universities. Research must be published and available for inspection.

### Prof Heike Winschiers-Theophilus

Topic: *Technology Design with Indigenous and Marginalised Communities - A Pragmatic Approach to Knowledge and Alternative Future Creation*

### Prof Sylvester Rodgers Moyo

Topic: *Intrauterine Infection Aetiology in Pregnancy - A Glimpse into Pregnancy Outcomes*

### Prof Omotayo Rafiu Awofolu

Topic: *Implacable Onslaught of Chemicals and Human Survival: Possible Resolution*

### Prof Hippolyte N'Sung-Nza Muyingi

Topic: *Societal Innovation Partnership through the Rural Living Laboratory (LL) Experience*

### Prof Sarala Krishnamurthy

Topic: *Post-Colonial Turn, Epistemic Shift and a Prolegomenon to Decoloniality*

### Prof Dharm Singh Jat

Topic: *Smart Computing and Communication: Enabling Future Internet of Things (IoT)*

### Prof Percy Maruwa Chimwamurombe

Topic: *The Microbiology-Indigenous Knowledge Nexus in Climate Change Coping Strategies in Namibia*



## Community Engagement

Community engagement is a core function of the University and it is aimed at strengthening the bond between society and academe by finding solutions to the many challenges experienced in real-life situations.

The NUST community engagement strategy is geared towards helping students achieve self-development through community engagement and voluntarism and to enable them to become responsible citizens, who are dedicated to improving the lives of others; serving their communities and humanity, and who will leave the world better off than they found it.

### Protect, Preserve and Promote Indigenous Cultures and Languages (P3ICL) project

This three-year research project aims to collect the intangible cultural expressions of language and information about rituals of culturally endangered groups, namely the Ovambadja, Ovahimba, San and Khoe-khoe communities. The overall goal of this European Union-funded project is to revitalise the languages and cultures of these groups.

### Women in Science Camp

The first-ever WiSci Girls STEAM Camp in 2015 brought together a diverse group of 30 female, U.S. high school students and 90 African students from 8 African countries for an opportunity to explore the STEAM fields through a hands-on curriculum taught by real-world practitioners in Rwanda. The 2015 WiSci partners included the U.S. Department of State, the United Nations Foundation's Girl Up campaign, UNESCO, Intel, Microsoft4Afrika, the African Leadership Academy and others.

The goal of the camp is to empower young women with the knowledge and skillsets to be competitive with their male counterparts during a time of rapid, technological development, providing them with access to high-tech resources, like-minded peers, impactful business connections and inspiring mentors. In 2018, the camp was hosted by NUST and was attended by learners from the Kingdom of eSwatini, Ethiopia, Kenya, the United States of America (USA), as well as 36 Namibian girls.

### The Tech Hub

The Tech Hub is a project that engages urban and rural San in the production of tech-enhanced accessories, thus supporting the group's production capacity and entrepreneurial skills. An example of a tech-enhanced accessory is mood jewellery that utilises augmented reality. The project is an initiative by NUST in partnership with the Embassy of Finland.

### Brain Match Competition

The year 2018 saw about 600 learners from the Khomas, Hardap and Otjozondjupa regions, descend on our campus to take part in the annual Brain Match competition. The aim of the competition is to sensitise learners about careers in Science, Technology, Engineering and Mathematics (STEM). The competition is open to both public and private schools and the organisers envisage that the competition will be institutionalized as an annual event and be rolled out nationally.



# Highlights of the Year

## NUST hosts land governance regional hub

The Department of Land and Property Sciences (DLPS) at NUST together with the Integrated Land Management Institute (ILMI) are playing a leading role in research and outreach in the field of land governance and administration. That is why the Institution was selected to host the Network of Excellence on Land Governance in Africa (NELGA), for the southern African region.

The Network was established by the African Land Policy Centre (ALPC) in cooperation with Germany, the World Bank and other partners. The purpose of NELGA is to enhance the role of selected African universities in support of land policy development, implementation and monitoring. NUST was selected as the NELGA node for Southern Africa.

## Research project promoting indigenous cultures and languages launched

A research team of the Faculty of Human Sciences launched the European Union-funded, Protect, Preserve and Promote Indigenous Cultures and Languages (P3ICL) project. The EU funds €250 000 (N\$ 3.9m) towards the project.

## NUST confers first full professorships

A total of seven academics were conferred full professorships and in keeping with academic tradition, they presented Professorial Inaugural Lectures on topics related to their work. The events were a culmination of assessments of the individual professors' academic achievements, including research, teaching and publications.

## GIZ funds land project with over N\$ 3 million

NUST and GIZ signed a Grant Agreement of over N\$3 million, financed by the Agency for German Development Cooperation (GIZ) through the Land-based Development (LBD) Programme. The core objective of the agreement is to support Namibia's land management capacity i.e. urban, rural and regional planning, administration and valuation.

## NUST Campus hosts one-hundred local and international schoolgirls

More than 100 high school girls concluded a two-week long Women in Science (WiSci) Girls in Science, Technology, and Engineering, Arts/Design and Mathematics (STEAM) camp at NUST. The WiSci camp was introduced with the aim to give girls access to education, mentorship and leadership training opportunities in a cross-cultural learning environment.

## NUST student elected to Space

Senior Shimhanda, a Bachelor of Electronic and Telecommunication Engineering graduate, and a final-year Master of Environmental Engineering student at NUST, was elected to the Space Generation Advisory Council (SGAC). Shimhanda is the Regional Coordinator (RC) for the African Region.

## Developing the Home-Grown School Feeding Initiative

NUST, the Ministry of Education, Arts and Culture (MoEAC), and the World Food Programme (WFP), signed a Partnership Agreement to develop the Home-Grown School Feeding Project (HGSFP). The project helps small-holder farmers become more self-sufficient, increase household income, while enriching school meals with nutritious fresh produce.

## Tech Innovation Hub launched at NUST

The Inclusive Collaborative Local Tech Innovation Hub (ICTIH).

## NUST receives top PMR. Africa Awards once again

NUST received two Diamond Arrow Awards, in the categories of Higher Education/Tertiary Institution, and Executive Education through the Harold Pupkewitz Graduate School of Business (HP-GSB).

## NUST awards first-ever doctoral degree

Two years after being renamed, NUST awarded its first-ever doctoral degrees. Drs Suama Hamunyela and Jude Osakwa, received doctorates in Informatics.

## SCIONA project to enhance conservation efforts

The SCIONA Project, an initiative on the 'Co-design of Conservation Technologies for the Iona-Skeleton Coast Transfrontier Conservation Area of Angola and Namibia', was launched in 2018.

The project is funded by the European Union to the tune of N\$16 million. The project was launched at the NUST Innovation Village.

## Namibia wins remote sensing competition in Botswana

Namibia, represented by former and current NUST students, won the SADC Remote Sensing Competition, which was organized by the Japan Oil, Gas and Metals National Corporation (JOGMEC). Namibia previously won this competition in 2013. The runners-up were South Africa, Madagascar and Tanzania, respectively.

## Namib Eco-Riders scoop awards in SA

A team of engineering students won second place at the 2018 Shell Eco-Marathon Challenge in South Africa. The Challenge brings student teams together from all over the world to compete, design, build and drive the most energy-efficient cars, with the hope that it may inspire future developments in the automotive industry.

# Extract from the Audited Financial Statements

## Statement of Income and Expenditure for The Financial Year ended 31 December 2018 and 2017

	2018	% of Total	2017	% of Total
	N\$		N\$	
<b>Revenue</b>				
Subsidy	821,204,198	74	533,578,429	67
Tuition	230,258,895	20	219,658,993	27
Residences	13,815,952	1	14,001,494	1
Interest Income	12,684,994	1	6,582,729	1
Other	45,994,190	4	33,300,593	4
	<b>1,123,958,229</b>		<b>807,122,238</b>	
<b>Expenditure</b>				
Personnel and Related Costs	650,360,197	74	553,865,522	71
Bad Debts written off and Trade Receivables Impairment	14,288,821	2	9,674,591	1
Depreciation	71,256,587	8	51,393,069	7
Asset Maintenance	18,745,335	2	25,849,317	3
Administrative and Other Costs	119,281,481	14	142,679,457	18
	<b>873,932,421</b>		<b>783,461,956</b>	
<b>Operating Surplus</b>	<b>250,025,808</b>		<b>23,660,282</b>	

## Subsidy, Cost Analysis and Assets

	2018	2017
Subsidy as % of Total Revenue	74%	67%
Tuition as % of Total Revenue	20%	27%
Subsidy per Student (N\$)	73,093	47,531
Cost per Student (N\$)	77,787	69,818
NBV of PPE (N\$)	1,729,817,957	1,741,798,146
Total Assets (N\$)	2,313,838,229	2,030,859,902

NBV = Net Book Value

PPE = Property, plant and equipment

# Council and Management

The Council Members	
Adv Esi Schimming-Chase (Chairperson)	Mr Goms Menetté (Deputy Chairperson)
Dr Tjama Tjivikua	Dr Andrew Niikondo
Mr Morné du Toit	Ms Linda Aipinge
Dr Michael Humavindu	Mr Samuel Januarie
Ms Maureen Kambala	Mr Markus von Jeney
Ms Kondjeni Nkandi	Mr Gabriel Neliwa
Mr Salomo Mbai	Mr Matchwell Lizazi
Ms Marvelous Shilongo	Prof Pramanathan Govender

The Executive Management	
Designation	Name
Vice-Chancellor	Dr Tjama Tjivikua
Deputy Vice-Chancellor: Administration and Finance	Mr Morné du Toit
Deputy Vice-Chancellor: Academic Affairs	Dr Andrew Niikondo
Deputy Vice-Chancellor: Research and Innovation	Prof Pramanathan Govender
Registrar	Mr Maurice Garde

Deans	
Faculties	Name
Computing and Informatics	Prof Anicia Peters
Engineering	Dr Samuel John
Health and Applied Sciences	Dr Sehaam Khan
Human Sciences	Prof Alinah Segobye
Management Sciences	Prof Harold Campbell
Natural Resources and Spatial Sciences	Dr Rolf Becker

Extended Management	
Units, Centres and Institutes	Name
Information Communication Technology	Mr Laurent Evrard
Bursar	Ms Mamijoo Tjejamba
Institutional Planning	Ms Neavera Tjivikua
Communications and Marketing	Mr Kaitira E Kandjii
International Relations	Dr Marius Kudumo
Quality Assurance Unit	Ms Himeesora Kaimu
Centre for Enterprise Development	Mr Godwin Chisenga
Centre for Open and Lifelong Learning	Dr Delvaline Möwes
Cooperative Education Unit	Vacant
Programme Development Unit	Dr Colen Tuaundu
Projects Services Unit	Dr Anna Matros-Goreses



**NAMIBIA  
UNIVERSITY  
OF SCIENCE  
AND TECHNOLOGY**



<b>BLOCK A</b>	A15. Lecture Building	<b>BLOCK E</b>	<b>BLOCK H</b>	<b>BLOCK K</b>	<b>BLOCK P</b>
A1. Elisabeth Haus (OVC)	A16. Information Centre and Kiosk	E1. Faculty of Health and Applied Sciences	Proposed in Campus Development Framework	K1. Cooperative Education Unit	Proposed in Campus Development Framework
A2. Sander Haus	A17. Office Building	E2. Mining Engineering Building	<b>BLOCK I</b>	<b>BLOCK L</b>	<b>BLOCK Q</b>
A3. Administration Building		E3. Civil Engineering Building			
A4. Land Management	<b>BLOCK B</b>	E4. Architecture Building	<b>BLOCK J</b>	<b>BLOCK M</b>	<b>BLOCK R</b>
A5. Centre for Open and Lifelong Learning	B1. Quality Assurance Unit				
A6. Department: Student Services	<b>BLOCK C</b>	<b>BLOCK F</b>	J2. Haydn Street No. 9	<b>BLOCK N</b>	<b>BLOCK S</b>
A7. Monresa Residence	C1. Foundation House	F1. Hotel School	J3. Design Lab		
A8. Hopker Residence	<b>BLOCK D</b>	F2. Pre-Fabricated Classrooms	J4. Namibia Energy Institute	<b>BLOCK O</b>	
A9. Shangri-La Residence	D1. Library and Information Services	F3. Namibia Energy Institute	J5. Namibia Business Innovation Institute		Proposed in Campus Development Framework
A10. Clinic	D2. Engineering Building	<b>BLOCK G</b>	J6. Namibia-German Institute for Logistics		
A11. Vocational Training	D3. Auditorium Building	Proposed in Campus Development Framework	J7. Gluck Street No.5		
A12. Oppenheimer House	D4. Science and Technology Building				
A13. Dawakos House					
A14. Centre for Enterprise Development					









**NAMIBIA UNIVERSITY**  
OF SCIENCE AND TECHNOLOGY

**Annual Report 2018**

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