NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Academic Affairs
Office of the Deputy Vice-Chancellor

ACADEMIC WELCOME 2020

Making NUST a 21st Century University: Harnessing Science and Technology for the Digital Economy

Theme: *Innovation for Economic Revitalisation*

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Deputy Vice Chancellor: Academic

PRESENTATION OUTLINE

- Introduction
- Curriculum of the future, not the past
- Response to upcoming digital economy - NUST
- SWOT analysis
- Progress - 2017-2019
- NUST – 2020 onwards
- Contribution to economic growth
- Conclusion

INTRODUCTION

- A new decade 2020 - last stop before 2030, which is Namibia's Vision

- Contributing to this national goal we should:

  - Make and keep NUST a premier university of science and technology preparing leaders for the knowledge economy

  - Teach the curriculum of the future, not the past

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CURRICULUM OF THE FUTURE, NOT THE PAST

- A learner who begins primary school today will graduate from university in the mid-2030s and their career will last through 2060 or beyond.

- Graduates from this semester will retire somewhere around 2065.

- How do we know what the world will look like by then?

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A Potential Future

Population
Platform considerations
Societal Structure
35-50 Billion IOT devices
Human Enhancement
Labor / skills needed for mining
Natural resources consumption
Artificial intelligence
Natural resources extraction (new techniques)
Robotics
Extraterrestrial mining (Earth's Moon)
Energy
Urbanization

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CURRICULUM OF THE FUTURE, NOT THE PAST (CONT'D)

Overwhelming evidence shows that the shift in what the workforce needs is already underway and that it will continue to grow much larger in the future.

CURRICULUM OF THE FUTURE, NOT THE PAST (CONT'D)

All around the world, leaders from government and industry debate the future of work and the changes brought by technology and automation.
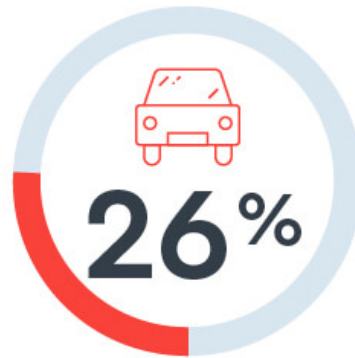
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CURRICULUM OF THE FUTURE, NOT THE PAST (CONT'D)

How will people work, consume and live by 2050?

Study Results (Fredrik Bergström 2016):

97%

Have shopped online

26%

Believe that vehicles operated by people won't exist in 20 years

46%

Of people believe that digitization will help increase employment

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The digital economy takes over

RESPONSE TO UPCOMING DIGITAL ECONOMY - NUST

- If we want to glimpse into the future, we need to look at what the leaders of tomorrow are experiencing today

- We should not aim to give students the skills only to stay marketable in the future, but the skills to create the future

- Revisit our current curricula, teaching modes and methods to prepare students for the digital economy

- Recognise our Strengths, Weaknesses, Opportunities and Threats

SWOT ANALYSIS

Demand-driven postgraduate qualifications

Postgraduate Certificate in Higher Education implemented

Competent Deans and Directors

Relevant policies in place

Strengths

Our students' mind-set is of the 21st century

Strong team of academic and admin managers

Qualified academic staff

Strong work ethics and commitment to quality

Steadiness in the midst of difficulties such as lack of finances

SWOT ANALYSIS (CONT'D)

Limited financial resources to enrol a significant number of academics in the Postgraduate Certificate in Higher Education

A number of our lecturers are not teaching in the 21st century context

Limited number of supervisors for theses and mini-theses

Weaknesses

Poor implementation of policies such as the workload policy

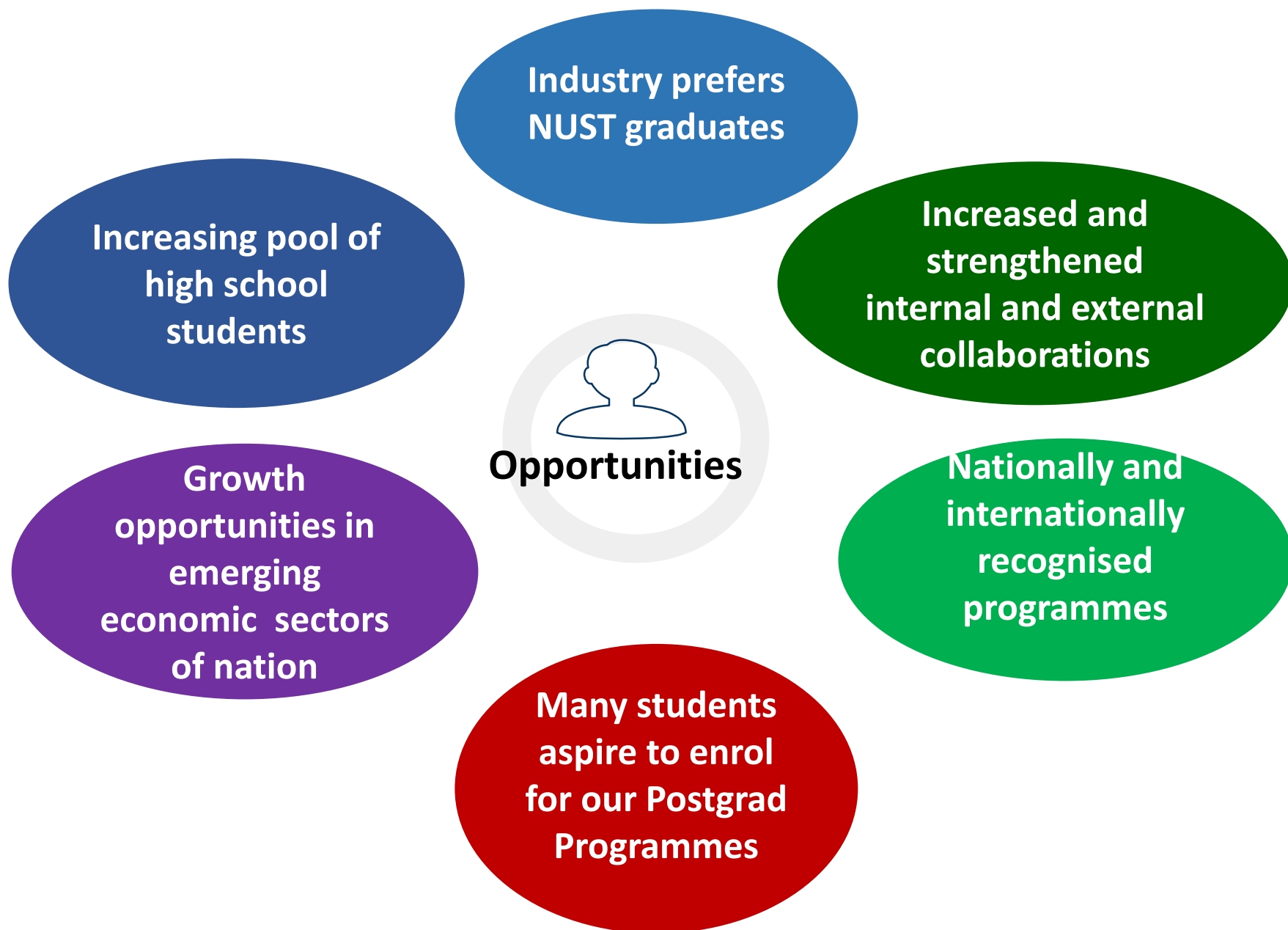High rate of resignation of HODs from their positions in some Faculties

Insufficient research incentives

Lack of senior academics in some Departments

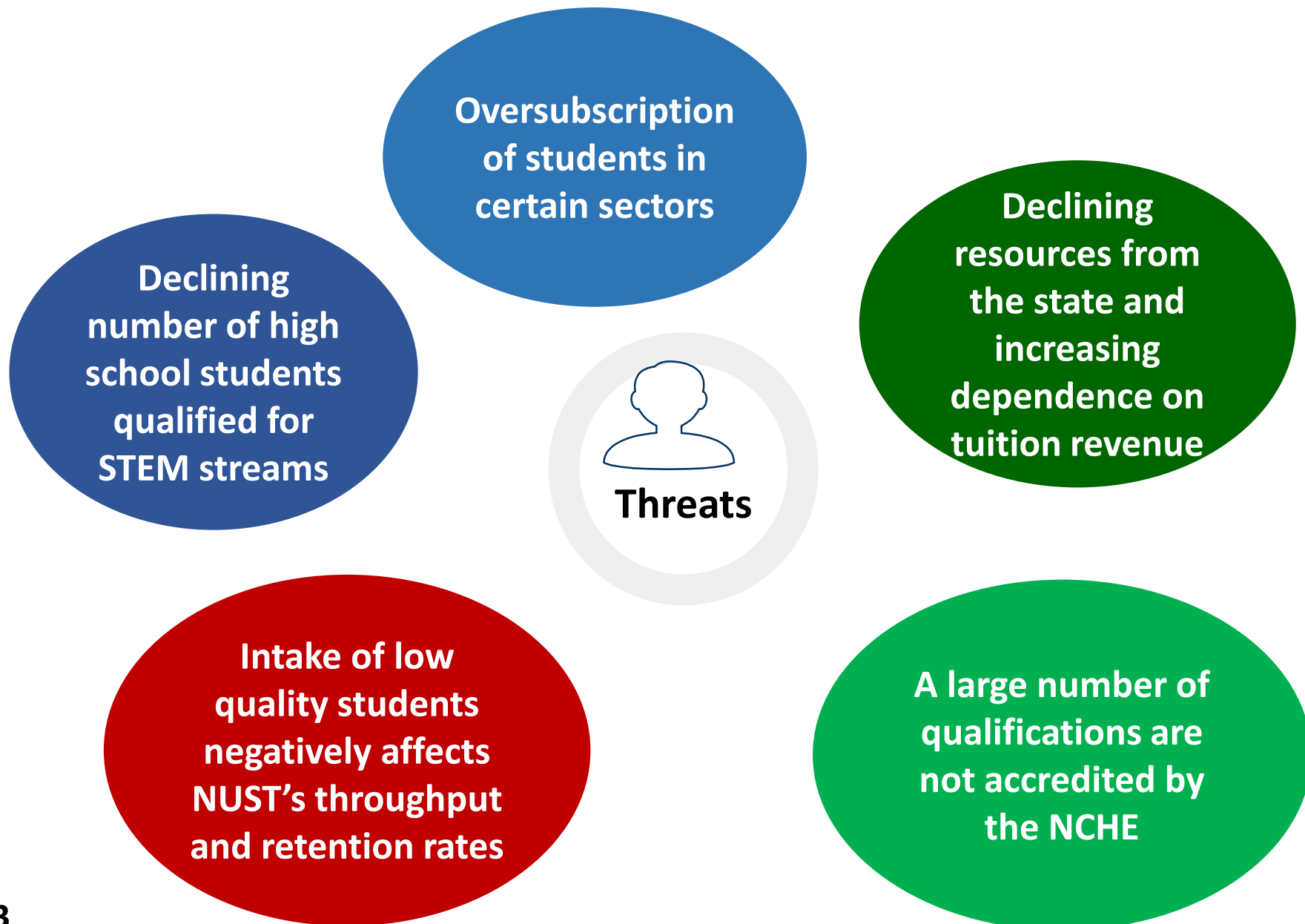Unable to retain faculty due to non-competitive remuneration packages
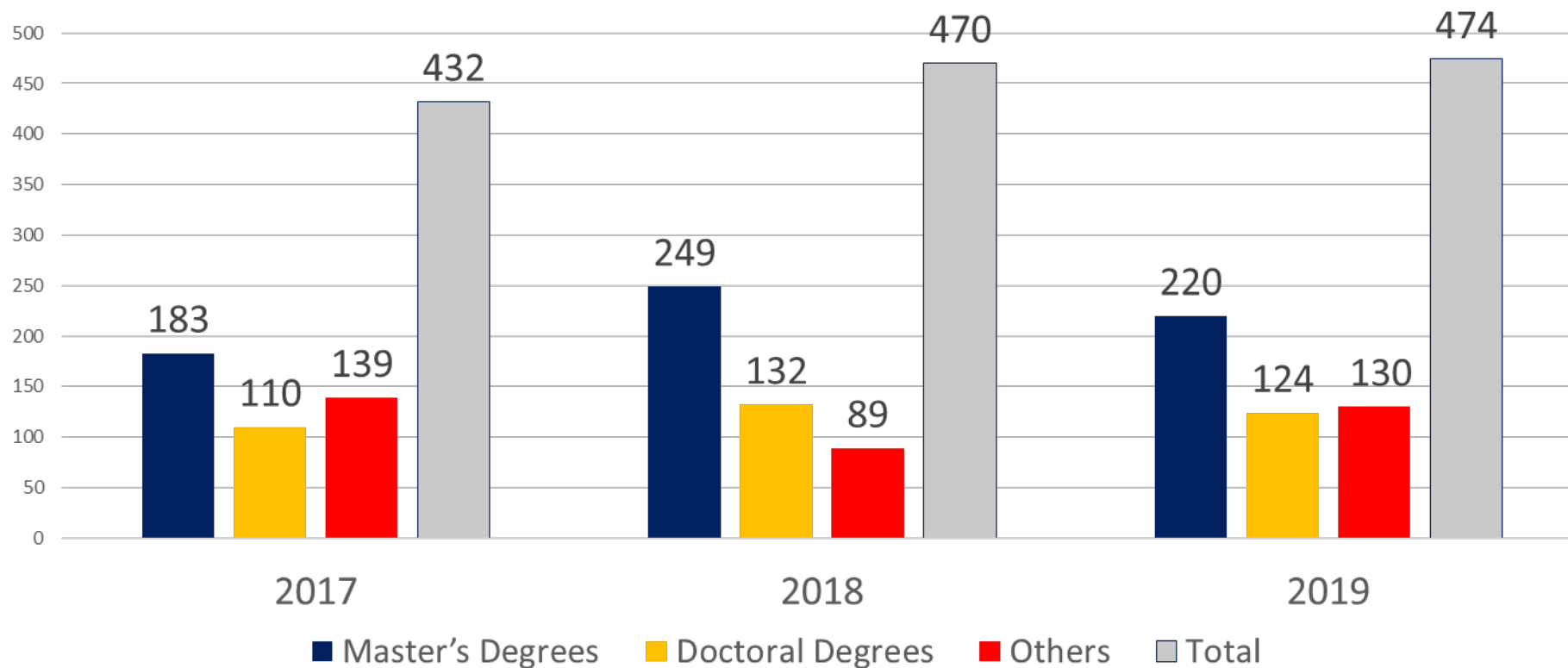
SWOT ANALYSIS (CONT'D)

Industry prefers NUST graduates

Increasing pool of high school students

Increased and strengthened internal and external collaborations

Opportunities

Growth opportunities in emerging economic sectors of nation

Nationally and internationally recognised programmes

Many students aspire to enrol for our Postgrad Programmes

SWOT ANALYSIS (CONT'D)

Oversubscription of students in certain sectors

Declining number of high school students qualified for STEM streams

Declining resources from the state and increasing dependence on tuition revenue

Threats

Intake of low quality students negatively affects NUST's throughput and retention rates

A large number of qualifications are not accredited by the NCHE
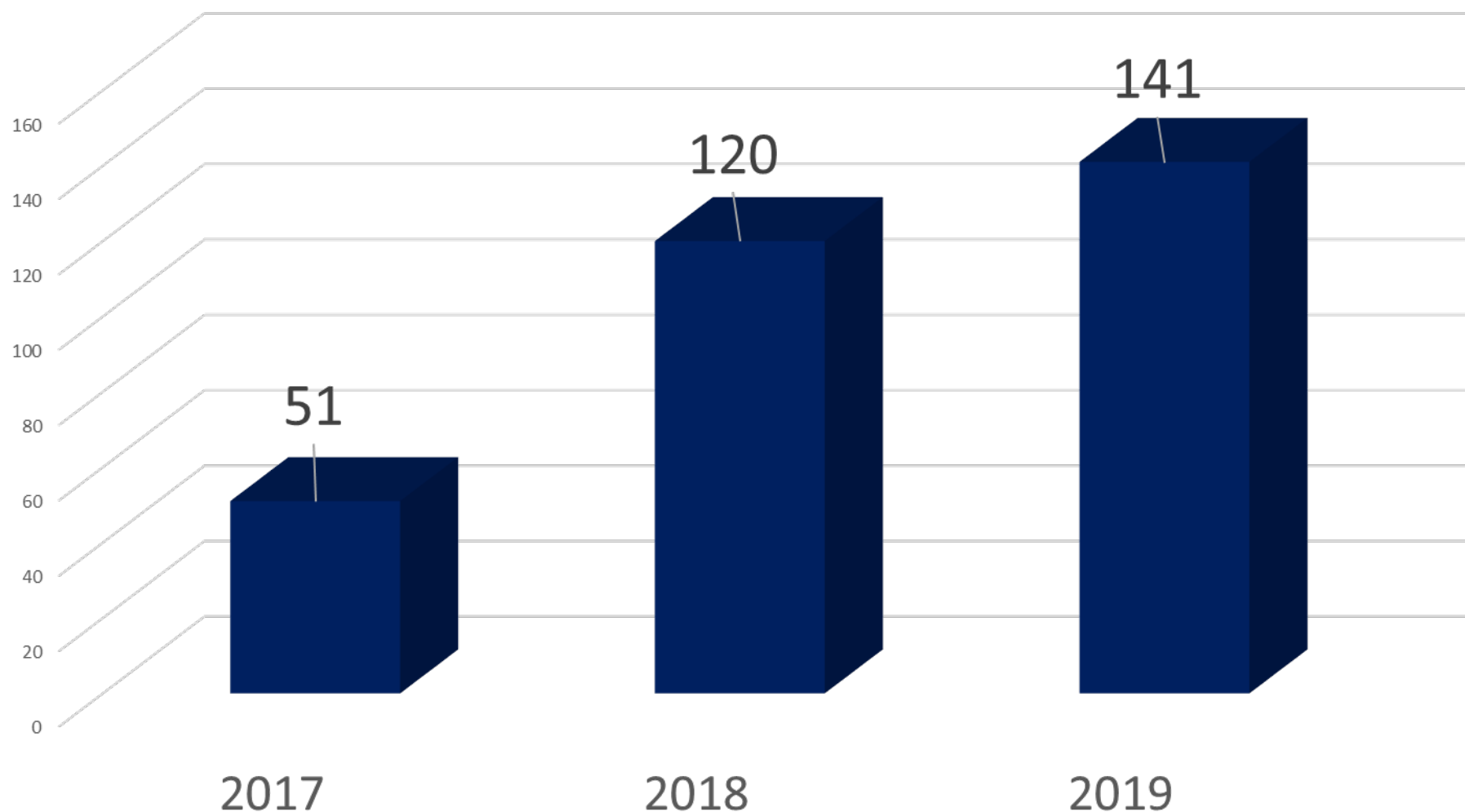
PROGRESS – 2017-2019

PROGRESS: 2017-2019
FM ACADEMIC STAFF PROFILE

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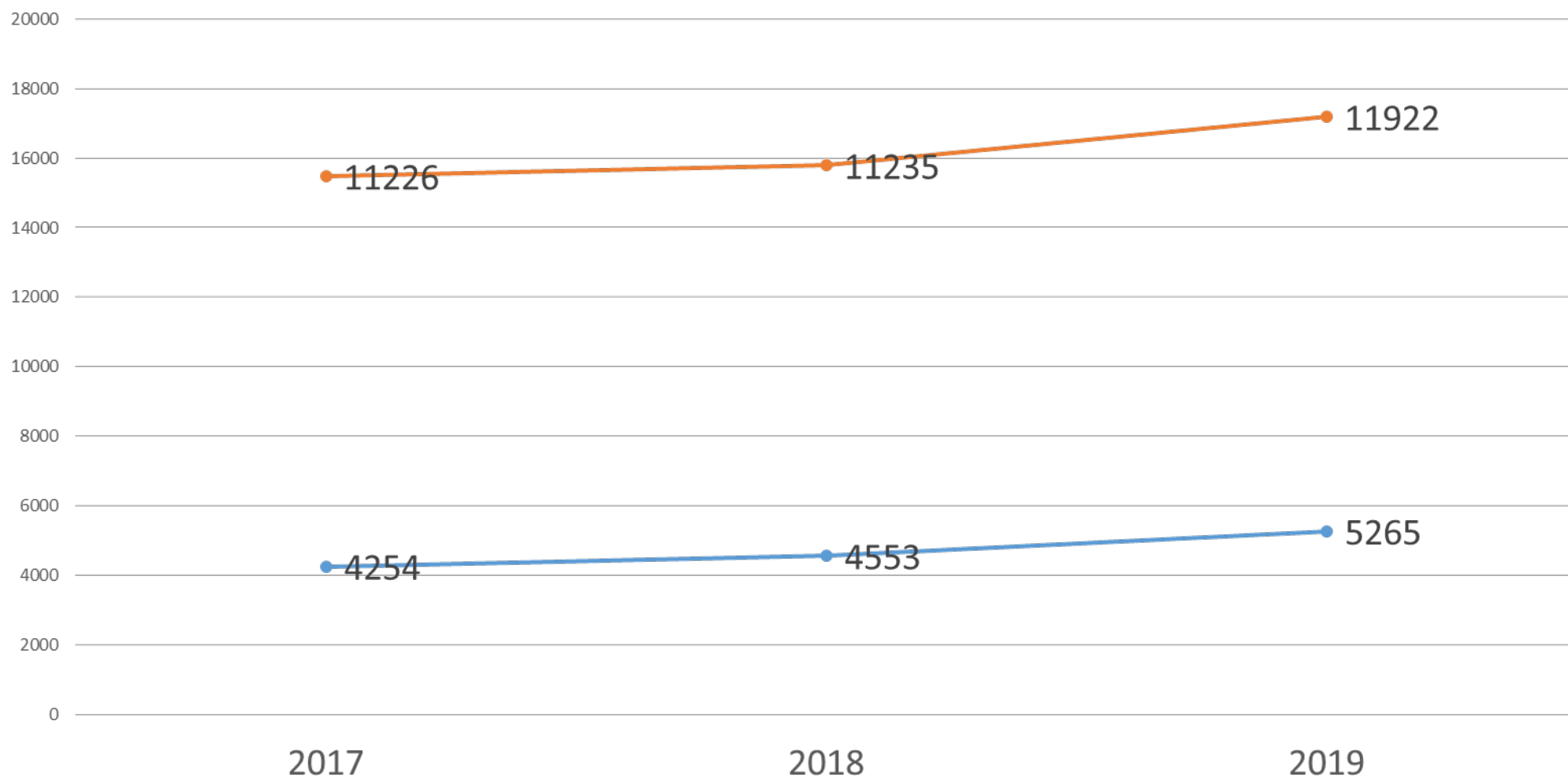# PROGRESS: 2017 – 2019 ACADEMIC STAFF ENROLLED FOR HIGHER QUALIFICATIONS
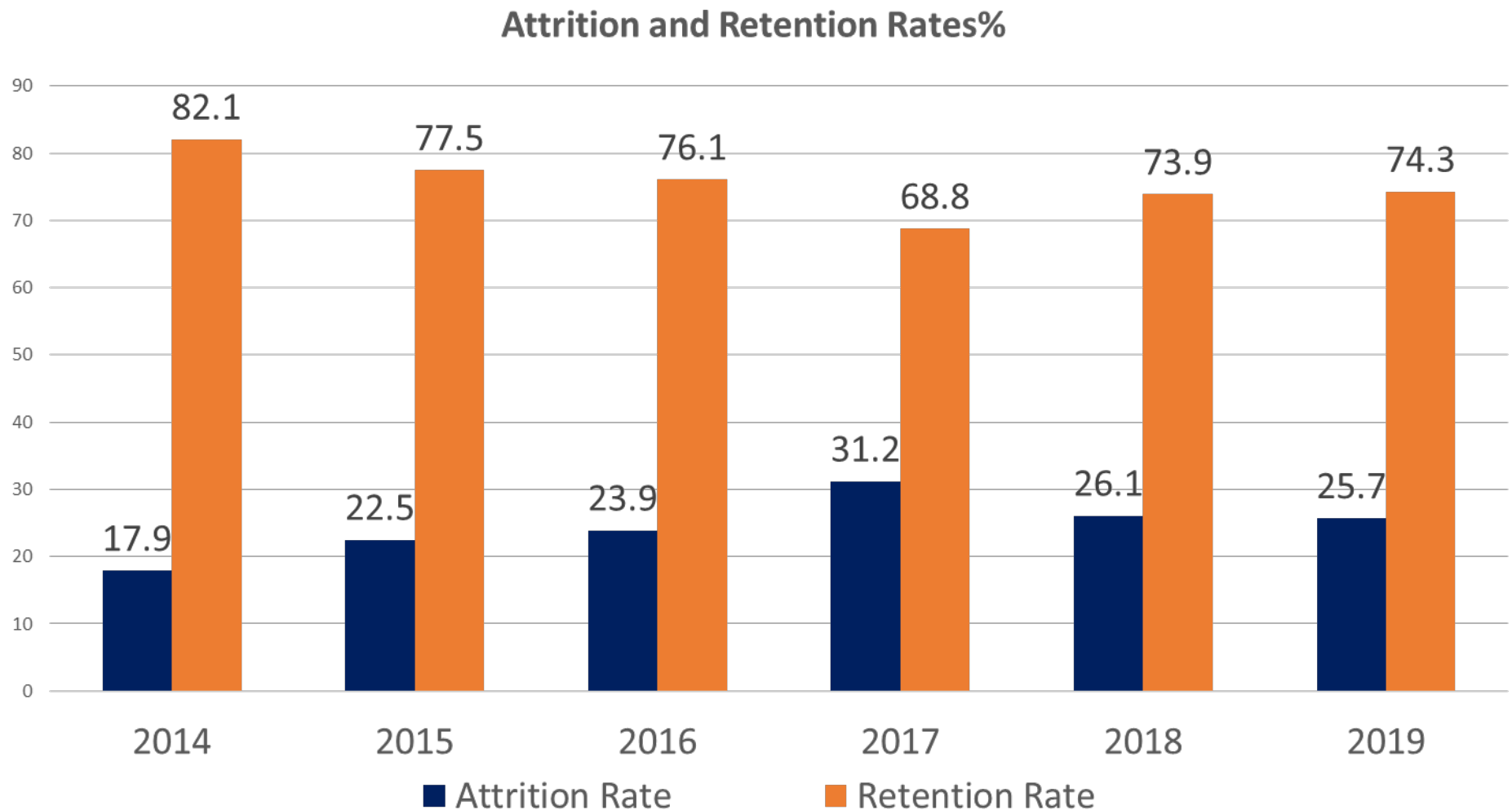
PROGRESS: 2017 – 2019 RESEARCH OUTPUT

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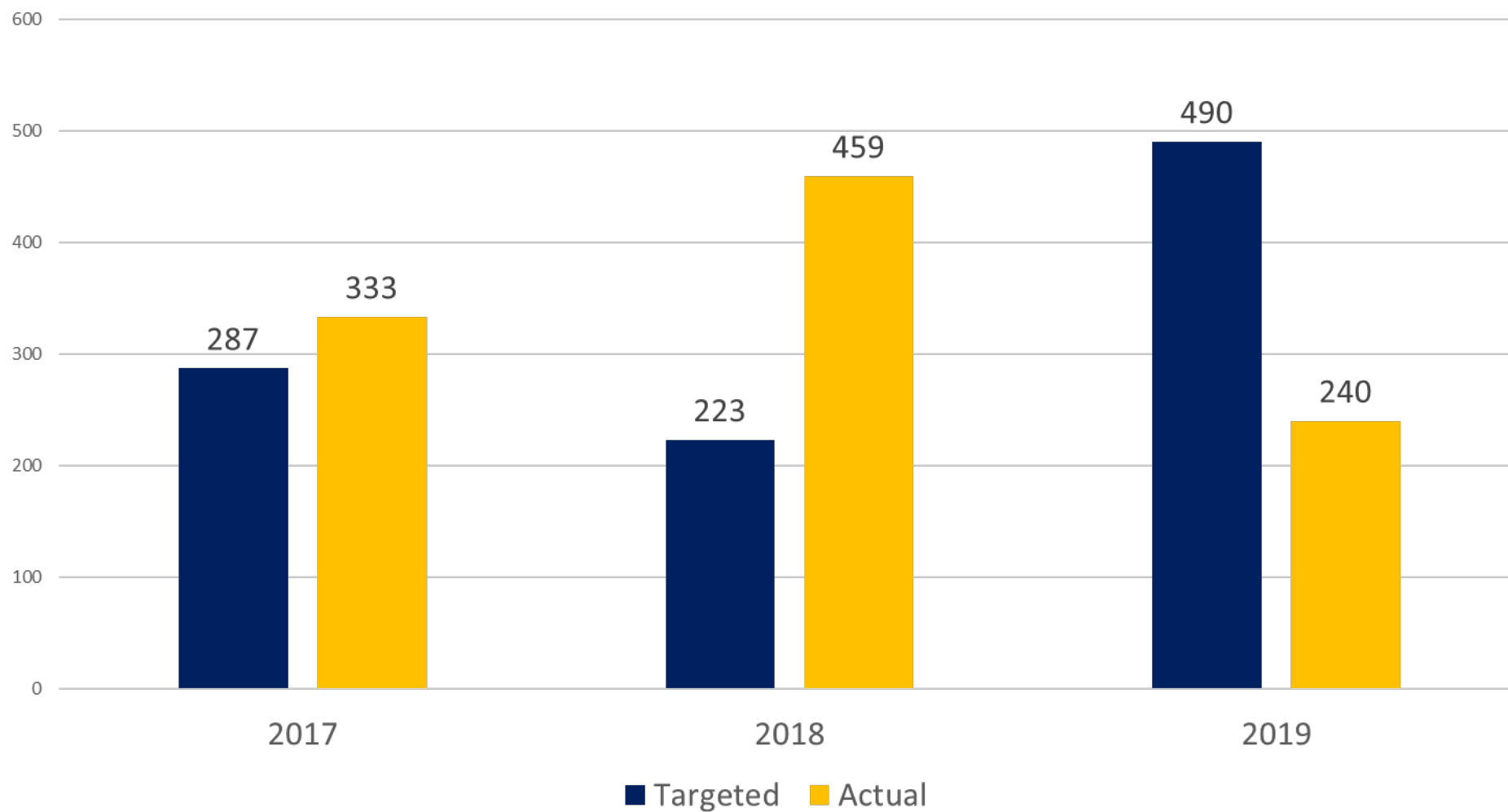
PROGRESS: 2017 – 2019 CONTRIBUTION TO NATIONAL DEVELOPMENT

Chart data points:

- Students enrolled in STEM: 2017 = 4254, 2018 = 4553, 2019 = 5265
- Enrolment aligned to NDP 4&5: 2017 = 11226, 2018 = 11235, 2019 = 11922

Legend: Students enrolled in STEM — Enrolment aligned to NDP 4&5

PROGRESS: 2017-2019 - STUDENT ATTRITION AND RETENTION

Attrition and Retention Rates%

Year	Attrition Rate	Retention Rate
2014	17.9	82.1
2015	22.5	77.5
2016	23.9	76.1
2017	31.2	68.8
2018	26.1	73.9
2019	25.7	74.3

■ Attrition Rate   ■ Retention Rate

NUST – 2020 ONWARDS

NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

ENHANCE TEACHING AND LEARNING TO ENSURE QUALITY AND EXCELLENCE

Traditional Learning

Told what we need to know → Memorize it → Problem assigned to illustrate how to use it

Problem-Based Learning

Problem assigned → Figure out what we need to know → Learn and apply it to solve the problem
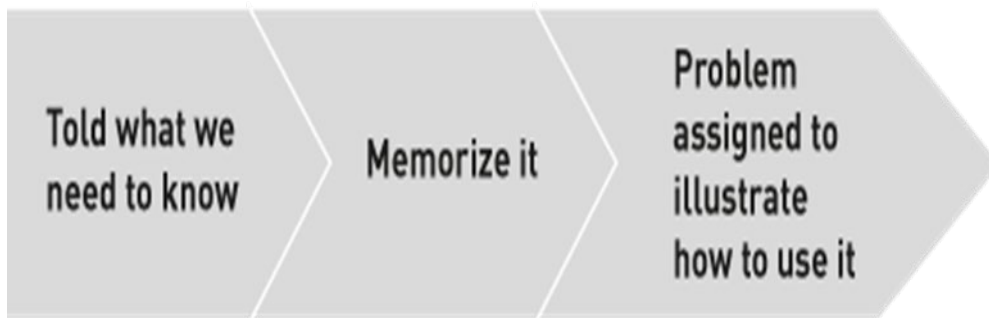
- Broaden innovative pedagogical approaches focused on engaging students in learning across the curriculum by implementing:

  - Blended learning
  - Flipped classrooms,
  - Mastery learning
  - Team-based/problem-based learning,
  - Study groups, student peer learning
  - Project based and case studies
  - Systems thinking
  - Podcasting
  - MOOC and OER

ENHANCE TEACHING AND LEARNING TO ENSURE QUALITY AND EXCELLENCE (CNT'D)

- When applicable, withdraw "under-performing" programmes based on, trends of low student recruitment or retention, poor outcomes, relevance of the programme etc.

- Revisit e-learning and distance teaching mode

- Promote expansion of opportunities for Work Integrated Learning (WIL)

- Strengthen entrepreneurship

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EXPAND RESEARCH, SCHOLARSHIP, AND CREATIVE WORK

- Attract and invest in the best PhD students

- Selectively recruit senior faculty in critical areas where the University is underrepresented or needs to accelerate development, e.g. :
  - *Recruiting academic staff by making use of H-Index top researchers*

- Attract and develop outstanding researchers
  - *Incentive scheme for researchers should be developed at all stages of career*

- Partner with internal and external stakeholders for impact

STUDENT CENTREDNESS

- Encourage pre-entry outreach activities to attract potential students to NUST, e.g. :

  Faculty outreaches in Mathematic, English, Engineering and Science areas developed this year

- Establish an enabling environment for students success, e.g. :

  Student Support Unit comprising
  - *Writing section*
  - *Mathematic section*
  - *Early Alert Programme*

GROW A NATIONAL AND GLOBAL PRESENCE

- Promote internationalisation

Promote internationalisation of curriculum and introduce double-degree programmes to ensure that students are exposed to global perspectives to build global competence

Ensure development of long-term relationships with industry and alumni

ARUA

1. Addis Ababa University
2. University of Lagos
3. University of Ibadan
4. Obafemi Awolowo University
5. University of Ghana
6. University of Dar Es Salaam
7. University of Nairobi
8. University of Witwatersrand
9. University of Rwanda
10. University of Cheikh Anta Diop
11. Makerere University
12. University of Stellenbosch
13. University of Pretoria
14. Rhodes University
15. University of KwaZulu-Natal
16. University of Cape Town

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GOOD GOVERNANCE AND MANAGEMENT

- Develop new policies, e.g. : *Consultancy policy, IP policy*

- Strengthen professional development to improve career paths at all levels

- Develop consistent approach to academic staff development and performance review

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GOOD GOVERNANCE AND MANAGEMENT (CONT'D)

Ensure compliance

CONTRIBUTION TO ECONOMIC GROWTH

- Technological innovation through commercialisation activities such as intellectual property licensing

- Capacity building of businesses that do not have their own R&D capacity

- Consultancy services opportunities for businesses to access academic specialists

- Training for private and public organisations - increases productivity and business innovation.

CONCLUSION

NUST after 2020

Excellence in scientific, technological and innovative teaching, learning and research

Relevance of collaborations in science, technology and innovation

New applications of technology that promote innovation and engagement

Promotion of Namibia into digital economy

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Thank You