



## **Durban University of Technology Research and Innovation Strategic Plan: 2014-2019 (Executive Summary)**

The Strategic Research Plan outlines in broad terms how DUT will attain its stated goals of increasing its research outputs from approximately 133 units in 2014 to 500 by 2018 and becoming a leading University of Technology within the region. The research productivity units include publication counts and postgraduate completion outputs for both Masters and Doctoral students. The operational plan of how the Research Strategy will be converted into practice will be set out in a separate document which will set specific targets over the stipulated 5-10 year period in line with the new strategic planning initiatives for the next phase.

Taking the local context of the university into account and its historical context, there is a need to change the university's research culture and increase its research and innovation outputs. This implies that:

- our academic staff will be research active, and will produce nationally and internationally recognized work within and across disciplines
- the qualifications profile of our academic staff will progress towards the national norms that have been set by the Department of Higher Education and Training
- we will publish our research in relevant and leading journals
- we will increase substantially the postgraduate component of the student body so that it reaches approximately 10% over a ten-year period
- support systems will be created to facilitate and enhance research
- we will develop postgraduate research and publication
- increase the total research income (from 2014 level), a significant proportion of which will be generated from Research Focus Area productivity units
- teaching and learning will be research driven starting at undergraduate level
- our students will be supported in their entrepreneurial and innovation education and creativity to be able to create their own startups and enterprises
- we will drive external engagement to contribute to the regional and national skills development.

The University has identified certain core principles which must be in place to underpin this strategy. These are:

- Excellence
- Academic Freedom and Institutional Autonomy
- Innovation
- Relevance to Context

- Focus
- Collaboration and Engagement
- Conducive Research Environment
- Research Sustainability.

**The following sections list the goals that can assist in taking this plan forward:**

1. Qualifications, research and innovation output and quality

The Plan requires most academic staff members to be research-active and sets out the defining criteria. **Targets for PhD completions are set.** The peer standing and public profile of our research staff will be raised. The University will engage in a recruitment strategy of high profile and competent academic and research staff. More sophisticated criteria for measurement of research and innovation outputs will be introduced.

(PhD Targets: : 23% (2018) ; 25%; 30%; 35%-40%.)

2. Challenging, relevant and innovative research

Broad guidelines for a balance between fundamental and applied research will be developed. Fundamental research will be respected and encouraged. IP management tools will be enhanced and commercialization of marketable intellectual property will be encouraged. The policy governing externally-funded work will be bedded down. Most research will be of type Mode 2. It will be applications oriented but with a central purpose of developing new knowledge. Mode 2 research is predicated on the development of research partnerships which come together at the very outset of research projects and programmes.

3. Areas of Excellence – Research Focus Groups

Although a few individual researchers form the backbone of our research system the University will identify a number of key Research Focus Areas (RFAs). RFAs will be expected to enable collaboration and tailored support to research groups and individual researchers. A clear mandate to RFAs is to also support Emerging Researchers in the relevant fields. The University has identified a number of RFAs three of which previously existed as NRF research niche areas; these are **Water and WasteWater Technology, Systems Science and Enzyme Technology**. Other emerging areas in Material Science and Composite Materials have been identified for growth.

There will be a deliberate attempt to build such Research Focus Areas and this will be done in

collaboration with local/regional industry, government, and other social entities. Faculties would be requested to identify existing focus areas for targeted development. The University will also have to pursue support in terms of research Chairs in partnership with the NRF, DST, Industry (Umgeni Water, Sasol etc.).

#### 4. Research Partnerships for Strategic Purposes

A small number of new focused international partnerships are proposed, particularly with leading international institutions to assist in staff and student exchanges and training.

More tightly-focused research partnerships with the private sector, NGO's and Government agencies will be created.

An expansion in inter-personal international collaborations will be encouraged, to include bringing more distinguished scientists and postdoctoral fellows to DUT with clear guidelines on expected and measurable outputs.

#### 5. Research environment, organization and systems

The capacity of the Research and Postgraduate office will need to be enhanced in order to provide better support for researchers, with a strong ethos of client support and value-added service as the research enterprise expands.

Postdoctoral support has been enhanced through the establishment of a postdoctoral forum with a dedicated postdoctoral support administrative staff from the research office. The formation of the postgraduate forum and representation is also an additional tool to ensure that the postgraduate community is recognized as a significant role player in the University. The existing research management model is centralized for Research and decentralized for postgraduate support with faculties retaining quality assurance roles for the approval of Research Proposals for students taking into account the Research Ethics requirements. As part of the Research support for faculties, each faculty will have establishment positions that include a Faculty Research Coordinator and Faculty Research Officer to ensure that there is increased administrative support for both postgraduate students and research staff.

As part of the faculty plans, a Research Development plan that details how the staff qualifications will be upgraded needs to be developed to feed into the University's overall Research Strategic plan.

A research equipment funding and maintenance model needs to be discussed and implemented and the role of the Library to offer adequate support to researchers needs to be considered. The Library will continue to work closely with the Research office to ensure adequate postdoctoral support in terms of access to information and working spaces for postgraduate students is adequate.

The current administrative systems need to be reviewed so as to enable the building of a research culture and to facilitate the performance of research.

The focus on improving the quality of the undergraduate programmes and facilities is important in order to create a pool of possible postgraduate students and create a viable research environment. DUT will also mount a deliberate, focused campaign to attract postgraduate students from South Africa and elsewhere. A dedicated project on the 'future generation of researchers' will be implemented using a number of instruments including a variety of PhD predoctoral programmes and postdoctoral programmes for staff with recent PhDs in line with the RDG requirements.

## 6. Long term research funding and research intensiveness

This will be secured by a raft of measures, including:

- An expansion in external research fundraising
- The development of a research equipment replacement plan
- The development of a research facilities upgrade plan
- The development of a strategy to attract more and higher quality postgraduates
- The expansion of research mentoring of younger academics by more experienced researchers either from DUT or from elsewhere
- The establishment of more postdoctoral fellowships
- The development of a strategic plan in consultation with the faculties to expand the cohort of female and Black researchers.

## 7. Resource Mobilization

The DVC (Technology, Innovation and Partnerships) with relevant Directors and the VC will facilitate possible stake holder meetings with the CEO's of the NRF, MRC, WRC, INDUSTRY, NGO's and EXTERNAL or INTERNATIONAL Organisations to form critical partnerships that assist in addressing the research initiatives and grant raising. This will in turn reduce the over reliance on the DHET subsidy and NRF funds. A database of all possible funding

organisations will be compiled and the University will be pro-active in initiating possible collaborations and partnerships with the view of raising funds for research purposes. The capacity of the Research Office will be optimized to facilitate and enhance grant-seeking.