



Mangosuthu University of Technology[®]

**Research and Innovation Strategic Plan
2030**

“Excellence with Social and Economic Impact”

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A: THE STRATEGY

Research and innovation strategy is a plan developed and utilized by institutions to encourage advancements in research development and technology through investing in relevant activities¹. This kind of strategy is essential for institutions to gain competitive advantage by inspiring and adding novel ideas and artifacts from different spheres of the university. The premise of our Research and Innovation Strategy is the result of comparisons with other institutions both locally and internationally and significant consultation with relevant internal university structures. Our research and innovation culture is dynamic, externally focused and responsive hence the motto “**excellence with social and economic impact**”. This plan is aimed at using and growing the commodious resources we have, from our student body to our excellent academic and support staff. Mangosuthu University of Technology (MUT) is orientated itself towards developing capacity that has great potential to deal with global challenges and safeguards our research and innovation to have a wide-ranging impact.²

VISION

By 2030, MUT will be internationally recognised as a research-informed institution that delivers excellent research with social and economic impact, fosters a research ethos that provides an outstanding student learning experience and is globally connected in addressing societal and economic challenges. To realise this vision, we are committed to building and supporting, across all disciplines, a culture of research excellence and impact that will pervade all aspects of our organisation, enhance our international reputation and become a point of pride and a key aspect of our identity. Working in such a culture will not only enhance the quality and quantity of our research outputs but also inform cutting-edge, research-informed teaching and learning to further enrich our student experience.

GOALS³

By specifying strategic goals to be achieved over the next five-ten years, this strategy sets out a roadmap to be followed for realising the University’s vision. The strategy identifies a number of objectives to be achieved with respect to each goal, and each objective is associated with a number of specific action items and targets/outcomes. The strategy is based around the achievement of the following four strategic goals:

1. RESEARCH EXCELLENCE

Deliver excellent research to firmly establish our reputation as a research-active university.

2. IMPACT ON SOCIETY AND ECONOMY

Leverage our position as the leader in translational research and innovation to make an impact on the economy and society.

3. PEOPLE AND ECOSYSTEM

Invest in and empower our people through a culture of excellence and impact.

¹ Business strategy online book. Available from <http://study.com/academy/lesson/what-is-innovation-strategy-definition-examples.html>. Accessed on 25 March 2017.

² Mangosuthu University of Technology, Stakeholder Engagement Plan 2017-2020.

³ University of Limerick, Research and Innovation Strategy Excellence and Impact 2020.

4. INTERNATIONAL REACH

Extend our global reach by engaging in international collaborative partnerships and disseminating research. Translating our research outcomes to maximise impact and extend our international reach to create a diverse, sustainable ecosystem of research and innovation.

GOAL1: RESEARCH EXCELLENCE

Deliver excellent research to firmly establish our reputation as a research-led university

MUT commits to creating a world-class environment that nurtures and encourages research excellence across all disciplines and career stages. Under this strategy, research activity will be supported and prioritised as we strive to increase the quality and quantity of our research outputs and the sustainability of the university.⁴

OBJECTIVE 1.1: MAXIMISE THE QUALITY AND QUANTITY OF RESEARCH OUTPUTS ACROSS ALL DISCIPLINES.

We will seek to increase research productivity by improving overall research performance and focusing on DHET accredited, high-quality, internationally prominent journals and books.

We will:

1. Publish and disseminate research in high-quality, internationally prominent journals and books.
2. Improve research performance by tailoring faculties, institute(s) and centre our research plans to build on existing strengths and distinctiveness.
3. Provide training and supports to enhance research productivity across all career stages, from novel and early career researchers through to senior and established leaders.
4. Monitor research performance in a comprehensive way, while recognizing discipline norms, across the following key indicators: postgraduate students, projects, publications, partnerships, practice and prestige (6Ps).

OBJECTIVE 1.2: FURTHER CONCENTRATE OUR RESOURCES ON OUR AREAS OF STRENGTH WHILE CONSOLIDATING RESEARCH ACTIVITIES TO ESTABLISH CRITICAL MASS IN EMERGING AND FOCUS AREAS.

By prioritising the resourcing of our areas of strength, we will lay the bedrock for further growth. By building critical mass with an interdisciplinary approach, we will work to secure our position among world leaders in targeted fields.

We will:

1. Structure and organise our research institutes, centres and units to realise the full potential of our investments in human and physical capital.
2. Promote best practice in our multi-partner national centres to enable them to

⁴ Mangosuthu University of Technology: Strategic Plan 2020.

- become world leaders in research excellence.
3. Align resource and recruitment planning with our research strategy to build critical mass and support performance.
 4. Continue to invest in research infrastructure to support performing areas.
 5. Review our research performance through benchmarking against international standards to inform strategic planning and identify emerging and focus areas.

**OBJECTIVE 1.3:
DIVERSIFY AND INCREASE OUR RESEARCH FUNDING TO SUPPORT LONG
TERM SUSTAINABLE GROWTH AND EXCELLENCE.**

We acknowledge that we work in a world where there is more competition for fewer resources. To realise our ambition and compete globally, we need to become organisationally effective and deliver on our commitments.⁵

We will:

1. Focus more on funding from external including international sources.
2. Expand in-house expertise across the fields of proposal development, networking and industry engagement.
3. Put in place structures and supports to achieve our funding diversification targets.

Targets/Outcomes:

- A 10% increase in the number of publications in IF (impact factor) ≥ 2 DHET accredited journals
- A 10% increase in the citation impact of publications
- A significant increase in the number of research books and book chapters with high-impact publishers
- A doubling of income from external funding sources
- Benchmarking and research performance review process embedded across the institution

GOAL 2: SOCIAL AND ECONOMIC IMPACT

Leverage our position as the leader in translational research and innovation to make an impact on the economy and society

We pride ourselves on delivering translational research that makes an impact on industry, society and the wider community. To strengthen our commitment to the pursuit of excellence in the generation of new knowledge that moves the country and the world forward, we will establish and strengthen a number of key strategies across the areas of research impact, knowledge transfer, enterprise engagement, innovation and entrepreneurship. We will champion the concept of the quadruple helix innovation model whereby government, industry, academia and community partners work together to co-create the future and drive transformative change.

OBJECTIVE 2.1:

⁵ MUT Research and Innovation Framework.

ENSURE THAT OUR SOCIAL, CULTURAL, POLICY AND ENTERPRISE STAKEHOLDERS REAP THE BENEFITS OF OUR RESEARCH

MUT has made significant progress in the area of translational research and research impact. We will continue to deepen and enhance this culture of impact and relevance. We will foster collaborative problem solving to deliver real change for our wide network of stakeholders.

We will:

1. Expand the MUT Research Impact Programme through internationalisation, capacity building and leadership in the field.
2. Evaluate the economic impact and social engagement of MUT research and innovation activity and identify opportunities and mechanisms to enhance impact.
3. Embed research impact principles in our research programmes and enhance our focus on strategic partnerships.

OBJECTIVE 2.2: STRENGTHEN OUR LEADERSHIP POSITION AS INDUSTRY'S PARTNER OF CHOICE

MUT has a long track record of excellent collaboration with industry. We partner with multinational and SMME companies in leading sectors of our economy, from pharmaceuticals, advanced manufacturing and agri-food to software, communications and med-tech. By anchoring R&D activity firmly within the Kwa-Zulu Natal (KZN) enterprise landscape, these partnerships lead to job retention and creation, skills enhancement and greater competitiveness and ultimately copper-fasten KZN's reputation as a knowledge-based economy.⁶

We will:

1. Build on our strong track record in technology transfer, business incubation, innovation and enterprise engagement.
2. Review and strengthen our R&D industry engagement structures with a view to strengthening our enterprise partnerships with SMME's and multinational companies.

OBJECTIVE 2.3: EMBED A CULTURE OF INNOVATION AND ENTREPRENEURSHIP ACROSS ALL FACETS OF OUR ORGANISATION

Through our research institutes and centres and the technology stations, MUT will place entrepreneurship and incubation activity at its core. This will position us to develop the campus into a leading hub for innovation. The ability to be connected to the world, think creatively, take risks and navigate challenges can enhance our society and support the economy. Through our graduate attributes, we look to develop future leaders who have entrepreneurial and innovation skills and who will contribute to national competitiveness, social development and economic growth.⁷

We will:

1. Continue to work in partnership with companies that contribute to the

⁶ Mangosuthu University of Technology: Research and Technology Transfer Operational Plan 2017.

- economic growth and development of the region.
2. Strengthen the technology station as a leading incubator of spin-out activity and entrepreneurship in the region by extending its pipeline and international reach.
 3. Establish student- and staff focused commercialisation programmes and entrepreneurship modules and expand these activities for second-, third- and fourth level students.

Targets/Outcomes

- Economic and Social Impact Report delivered by 2020
- The enhanced Knowledge Transfer and Enterprise Strategy delivered by 2020
- Technology Transfer indicators at international best practice level (by 2020)
- Licenses, options and assignments per funding signed with industry – 1 per R2 million investments per annum.
- Invention disclosures – 3 per R 9 million investments per annum.
- Patent applications – 2 per R8 million investments per annum.
- A formation of new spin-out companies and a 10% increase in research income from industry
- Commercialisation and entrepreneurship training provided to staff and students
- An introduction and implementation of a student enterprise boot camp programme impacting 15% second-, third- and fourth year level students

GOAL 3: PEOPLE AND ECOSYSTEM

Our staff and students are the key to our success. Their energy, responsiveness and collaborative spirit provide the foundation for a culture of excellence. Thus, attracting world-leading researchers while nurturing and supporting our research community is a central pillar of our research strategy and will continue to be a priority.⁸

OBJECTIVE 3.1: ATTRACT ESTABLISHED AND FUTURE RESEARCH LEADERS

Research of the highest standard requires people of outstanding talent. To continue to build our internationally-respected research community, MUT will attract excellent researchers. We will continue to invest in and support research leaders from across our academic community. Research excellence and leadership should be key criteria that determine all recruitments across the University.

We will:

1. Develop recruitment strategies and funding diversification plans that prioritise excellent track records and international experience to attract high-performing researchers capable of securing significant funding, such as NRF, SA-MRC, etc. awards.
2. Focus on attracting prestigious international fellowships
3. Put in place support mechanisms to develop research leaders who make a global impact.
4. Create an environment that encourages multidisciplinary thinking and collaboration

**OBJECTIVE 3.2:
RECOGNISE AND ENCOURAGE EXCELLENCE ACROSS OUR
RESEARCH COMMUNITY**

To realise the ambitions of this strategic plan, we will need all members of our community to share our vision and be motivated to work together. This will be achieved by building capacity and leadership skills across research and support teams, utilising professional development opportunities, forging collaborations and creating an environment that supports our research goals and encourages staff engagement. Investing in our leadership and management capacity will help us to support colleagues to respond flexibly to a changing research environment. We will continue to be committed to and promote the principle of equality of opportunity.⁹

We will:

1. Ring-fence time for research in workload allocation models and timetabling and scheduling systems to facilitate greater research output and support for active researchers.
2. Encourage staff and research students to reach their full research potential and support their career development through tailored professional development and training programmes.
3. Enhance the skills of our research leaders and research community to maximise our competitive research funding success rate in a global environment
4. Ensure support for women to remain research active throughout their careers, to encourage progression and to ensure gender equality.
5. Increase research productivity across all career stages and encourage MUT administration and support staff to become research aware and embrace a changing research culture.
6. Establish a research equipment and infrastructure renewal and maintenance plan.

**OBJECTIVE 3.3:
PROVIDE STUDENTS WITH A RESEARCH-INFORMED EDUCATION**

The benefits of fostering an enquiry-based, research-informed learning environment in higher education institutions are well documented; they include more research opportunities and outputs; higher-quality, research-informed teaching and learning; independent thinking; and a culture of entrepreneurialism, all of which collectively create better career opportunities for students. It is our aspiration that students will graduate with strong entrepreneurship skills and will be adept at collaboration and informed by research. Supervision plays a crucial role in research postgraduate education, and MUT is committed to providing professional development to supervisors. We will continue to enhance our transferable skills training for postgraduates.

We will:

1. Improve the alignment of teaching with research at all levels.
2. Champion innovation and excellence in postgraduate degree education with a focus on enhancing the quality of the educational experience to produce

- graduates with suitable attributes for their future careers.
3. Increase enrolments in post-graduate qualifications while improving completion times and rates.
 4. Improve the provision of professional development to supervisors, including formal training and the informal sharing of experiences within faculties.
 5. Enhance our taught postgraduate programmes to build upon our research strengths and align to market demands.
 6. Consolidate and align structures and processes to support growth in research postgraduate numbers.

**OBJECTIVE 3.4:
OPTIMISE MANAGEMENT AND SUPPORT STRUCTURES AND POLICIES TO
ENABLE OUR STRATEGY**

We recognise the role that best-in-class structures and policies play in our efforts to enable researchers and support teams to deliver on our strategic priorities. We will ensure that research is important throughout the institution by embedding it in all our management and support structures and policies, including recruitment, strategic planning and leadership activities.

We will:

1. Embed research, including associated accountability, reporting and incentivisation processes, as a priority across all institutional management structures and systems.
2. Recruit and reorganise high performing teams around key appointments to maximize research impact and support succession planning.
3. Put in place research institute strategies and faculty and divisional plans that support the institutional research goals.
4. Promote best practice in research leadership and management, including equal opportunities and diversity.

Targets/Outcomes

- A 20% increase in the number of staff involved in research and academic leadership training programmes
- All faculties, research institute(s), centres and divisional plans in place and clearly supporting the institutional research goals
- A 10% increase in the number of international fellowships
- A 10% increase in the number of research postgraduates with publication outputs
- A 10% increase in the number of research postgraduates and postdocs with international co-supervisors where applicable for post-doctoral fellows
- A 10% increase in the number of doctoral enrolments
- A 10% increase in the number of staff supervising employment-based and part-time postgraduate enrolments
- A 10% increase in the number of full time academics supervising postgraduate students

GOAL 4: INTERNATIONAL REACH

MUT will become a truly international institution through its research and enterprise engagement activity. We will broaden our horizons, extend our global reach and bring our unique MUT research story to the world by engaging in collaborative partnerships and networks and disseminating our research as widely as possible.

OBJECTIVE 4.1: FOSTER AND STRENGTHEN OUR GLOBAL PARTNERSHIPS AND ENABLE OUR PEOPLE TO BECOME KEY INTERNATIONAL INFLUENCERS IN THEIR RESPECTIVE FIELDS

By expanding our strategic global partnerships, we seek to enable our research leaders to become key figures in the international landscape of their disciplines. The strength and depth of our collaborations and partnerships will help MUT to become a more globally connected research institution.¹⁰

We will:

1. Undertake a comprehensive audit of existing international research partnerships to identify gaps and opportunities.
2. Encourage and support staff to avail of travel, exchange and fellowship schemes to build international research links.
3. Identify and engage with international research networks that align to our areas of strength.
4. Establish an international research outreach programme across areas of strategic importance.

OBJECTIVE 4.2: EMBED DISSEMINATION AND COMMUNICATION IN ALL RESEARCH ACTIVITY TO RAISE OUR PROFILE AND EXPAND OUR NETWORKS.

Sharing and communicating our research successes effectively will help us to achieve our global ambitions. Telling our research stories must become second nature as we seek to extend our global reach in truly innovative ways.

We will:

1. Maximise the exposure of our publications within academia through traditional and digital dissemination methods and by increasing the number of publications with international co-authorship.
2. Provide communication and dissemination training to all researchers.
3. Enhance our external and internal research communication activity by emphasising dissemination, international audiences and digital delivery.
4. Establish an institutional open-access publication fund for quartile one publications.
5. Raise the profile of our research through print and digital platforms.
6. Showcase our research output to provincial and local government in order to allow them to cascade their plans around the strengths of MUT research.

Targets/Outcomes

- A 5% increase in the number of publications with international co-authorship
- An international research partnerships report delivered by 2025
- The percentage of peer-reviewed publications (excepting embargoed publications) in the MUT Institutional Repository increased to 50%
- A 10% increase on how our research is making a difference or impact it brings to the communities we serve.

B: IMPLEMENTATION

The strategy supports the objectives of our institutional Internationalisation Strategy,

¹⁰ Mangosuthu University of Technology, Internationalisation Strategy 2017-2020.

Stakeholder Engagement Strategy, Fundraising Strategy, Research and Innovation Framework, Research Policy and Intellectual Property Rights Policy. A key element of the strategy's implementation will be the development of faculty and research institutes and centers plans, which will include relevant comprehensive performance indicators. For the goals of this strategy to be achieved, the MUT community needs to be fully engaged with the process throughout the implementation phase. A detailed implementation plan will be developed and performance against targets will be reviewed on an ongoing basis. Deputy Vice Chancellor: Research, Innovation and Engagements will oversee regular reviews of the strategy and will report on findings to Senate and Council.

C: ACKNOWLEDGEMENTS

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