Strategic Plan for Postgraduate Research Training
2023 – 2027

University of the Witwatersrand, Johannesburg
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Version Control

Version	Description	Date
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0.2	Draft with PG strategy complete	2 June 2022
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1.2.	Integrated inputs from all stakeholders listed in 1. Below.	19 October 2022
2.0	Edited for tone and style in preparation for submission to Senate	20 October 2022

Version numbering scheme:
0 = early rough drafts containing broad stroke ideas and concepts
1 = drafts that contain inputs from the task team and through consultation with various stakeholders
2 = final drafts that are being considered for approval by various statutory bodies in the University

1. Purpose

This Strategic Plan for Postgraduate Research (the Plan) is a strategy of the University of the Witwatersrand, Johannesburg (Wits or the University) and was approved by Senate and Council. The purpose of the Plan is to provide aspirational goals and associated supportive frameworks that will shape and direct investment and activities across the University in order to provide postgraduate students with a high-quality and sought after learning experience.

The Plan should be read in conjunction with three other related strategic plans, namely the strategies for research, innovation, and internationalisation. The 2018 - 2022 Strategic Plan for Research and Postgraduate Affairs was developed under the umbrella of the Wits Vision 2022 strategic framework (Wits, 2017). The current Plan is aligned with new Wits 2033: Strategic Framework that positions the University at the "leading edge of the Global South" (Wits, 2022). The Plan will guide our institutional trajectory in the first five years of the University's second century.

The process followed to create this Plan was led by the University Research and Innovation Committee (UR&IC) that is chaired by the Deputy Vice-Chancellor for Research and Innovation (DVC: R&I) and involved multiple inputs from a representative task team dedicated to advising on the process, and many University stakeholders. Those consulted included members of the Faculties' Research Committees, the Faculties' Postgraduate Committees, the Postgraduate Association, The Division of Student Affairs, the Senior Executive Team, the Senior Management Group and Library Services. Importantly, all staff members of the University were invited to comment on the document on three occasions. The resultant document thus represents the iterative outcome of these important consultative processes.

2. Executive Summary

The strategic context for this Plan is set on the national level by the National Development Plan (NDP) (National Planning Commission, 2012), the 2019 White Paper for Science, Technology, and Innovation (STI) (DSI, 2019) and the related 2021 Decadal Plan for STI (DSI, 2022). These documents emphasise that investments in STI should address the country's social challenges through the acceleration of knowledge and digital innovation that leads to inclusive and sustainable socio-economic development.

In the Wits context, the University enjoys a rich history of high-quality research and postgraduate student training, underpinned by a strong commitment to social justice. From its inception, 100 years ago, Wits has been committed to quality research and postgraduate training and has identified itself as "research intensive". Inherent in the notion of research intensity is that research is strongly enabled by the postgraduate student cohort and that research and postgraduate training form two sides of the same coin in the knowledge economy.

The cumulative effects of the University's recent strategic trajectory have produced significant growth in external funding, research publications and postgraduate student numbers. Between 2011 and 2021, the quantum of external funding for research has outstripped that of any of the University's peers in South Africa, the number of publication units[1] increased by 120% and overall postgraduate enrolment numbers increased by 73%. However, this strong growth significantly outpaced the growth of supervision capacity, with the number of staff able to supervise doctorates (i.e., staff with PhDs), only growing by some 45%. This "supervision capacity gap" has resulted in increased pressure for doctoral supervision on appropriately qualified staff – an almost doubling of demand over the last 10 years,

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[1] Using the DHET fractional author count methodology

which is impacting research and postgraduate student training. In line with many parts of the world, this gap and the apprenticeship model that underpins it has potentially contributed to high levels of attrition and completions that are significantly over the maximum time allowed. These challenges are further exacerbated by significant declines in the already limited public funding of postgraduate students in South Africa. Wits' current programmes and funding models are therefore no longer optimally geared to drive the agenda of a postgraduate-focussed, research-intensive university aimed at serving the public good.In line with the University's 2033 strategic framework, strategic goal for our postgraduate research efforts will be "to produce socially engaged postgraduate thinkers and innovators equipped to use knowledge for change in the country, in Africa and across the world". Achieving this goal requires enabling the development of the kind of research training programmes that encourage critical, engaged thinking and knowledge production as part of a vibrant graduate culture that fosters collective, collaborative and internationally linked scholarship. Over the next 5 years, we will pursue these twin objectives through three interrelated activities:

1. We will design and implement new postgraduate programmes, curricula and pedagogies, through leveraging our position at the forefront of research in the Global South. These programmes must by definition encourage interdisciplinarity, collaboration and structurally create the conditions to grow a vibrant graduate culture.
2. We will provide seamless world-class systems to enable accurate self-assessment of research progress by students, supervisors and faculty managers, access to cutting-edge research software, data and information systems that facilitate real-time effective communication between key postgraduate stakeholders, and the type of equipment and instrumentation required to produce cutting-edge research. We will also establish new methods to support and better integrate existing library information services into our postgraduate architecture.
3. We will resource our students with access to an expanded pool of internal and external funding opportunities, while increasing awareness about sizeable existing funding opportunities that are frequently missed due to dated communication technologies. This will form part of an integrated funding strategy that will include rolling out teaching assistant programmes. Such programmes represent direct investments in the development of students as young scholars and teachers.

The combination of invigorated postgraduate programmes, that include potential coursework-based units taught collaboratively by excellent Wits scholars and international visiting professors in cohorts where appropriate, will provide students with the very best foundations for acquiring the skills that translate into advanced interdisciplinary research capacity. Alongside these benefits, we will offer structural and learning support to all postgraduate supervisors through dedicated courses. This will advance the quality of supervision across the University. Together, the intersection of these activities should change the often lonely and alienating conditions that define much postgraduate research currently, through growing a vibrant and inclusive research culture. Our graduate research management system will flag areas of student training and other areas of concern that require attention. These will be addressed timeously. We will continue to grow our base of postgraduate funding by introducing new funding models and ensuring that existing funding opportunities more frequently find their targets. Together, well administered cutting-edge courses, restructured in line with new supervision approaches, and secure funding, should provide all Wits postgraduates with balanced, world-class research training that will equip them to use knowledge for positive change in whichever sector they work. The successes of this strategy will potentially form the basis for the establishment of a Wits Postgraduate School in the next strategic review cycle.

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3. Current Context

3.1. The South African Strategic Context

The South African higher education and research landscape, within which Wits operates, is framed by several key national strategies. One of the most important is the National Development Plan (NDP, 2012) which calls upon the country's higher education sector to deliver the following by 2030:

- An increase in the proportion of academic staff with a PhD to 75% of the total.
- An improvement in the quality of teaching and learning.
- An increase in the participation rate so that the total student enrolments amount to 1.62 million.
- An increase in the throughput rate to more than 75% (or the graduation rate to more than 25%) of students.
- An increase in the number of postgraduate students to 25% of total enrolments.
- The graduation of more than 100 doctoral graduates per million of total population per annum.
- A doubling and commensurate increase in the number of women and black postgraduates graduating with science degrees.

This broad stroke plan is further developed in the 2019 White Paper on STI (DSI, 2019) which emphasises the "core themes of inclusivity, transformation, and partnerships". It presents ways "to address policy coherence, the development of human capabilities, knowledge expansion, innovation performance and increased investment". These proposals are meant to inject "creativity, learning and entrepreneurship" into the National System of Innovation (NSI).

Finally, the 2021 Decadal Plan on STI (DSI, 2022) drives the priorities listed in the White Paper. This plan emphasises that investments in STI must address the country's social challenges through the acceleration of knowledge and digital innovation and must lead to inclusive and sustainable socio-economic development. The plan recognises four societal grand challenges including climate change; future proofing education and skills development; re-industrialising the modern economy; and the future of our society. It also identifies two STI priorities, namely health innovation and energy innovation.

3.2. The Social, Political and Knowledge Realities

The last 20 years have ushered in a fundamental shift in the nature of knowledge work. Advances in technology have translated into unprecedented access to data and knowledge. This speed of technological advancement together with an emphasis on building skills for knowledge-based economies means that the world is moving through the fourth industrial revolution. However, the gains of this shift are not shared equally by all. Colonial legacies have continued to deepen social inequality within and between countries. These inequities were amplified during the outbreak of the COVID-19 pandemic and define the global landscape in its wake. Within this post-COVID configuration, South Africa is faced with enormous challenges. Increasing levels of unemployment, food insecurity and violence continue to plague the country's youthful population. The intransigence of these wicked problems means that South Africa remains one of the most unequal societies on Earth. The higher education and science sectors have not escaped unscathed. Both have deployed austerity measures to stave off the growing fragility of the country's economy. As part of a global trend, South African universities face state funding cuts and are increasingly expected to source private funding to sustain

the knowledge creation pipelines required to bring innovation to the African continent and service its labour market.

3.3.   The Wits Context

Students are the lifeblood of a university and form its most precious intellectual resource. Since identifying itself as "research intensive" University, the institution has committed to increasing the quantity and quality of its research and postgraduate programmes. Research intensity is strongly enabled by the postgraduate students of the University. Indeed that research and postgraduate training are two sides of the same coin, in the knowledge economy. Thus, as early as 2007, the University research plan emphasised postgraduate growth and student publication as priorities. The Wits 2022 Strategic Plan increased the institution's focus on enhancing the quality of the postgraduate experience and increased its targeted proportion of postgraduate students to 45% of the overall student body under a clear transformation imperative. The increasing prioritisation of postgraduate scholarship was formalised in the University's 2018-2022 Research and Postgraduate Affairs Strategy. The vision articulated at that time was for increased amounts of "research with impact" and a "swift, secure and stimulating postgraduate experience".

The cumulative effects of the University's strategic trajectory over the last decade have produced unprecedented growth in research publications and postgraduate numbers. Between 2011 and 2021, the number of publication units[2] increased by 120% and overall postgraduate enrolment numbers increased by 73%. Doctoral growth was higher, with enrolment figures increasing by 80% in the same period. However, this strong growth significantly outpaced supervision capacity with the number of staff able to supervise doctorates (i.e., staff with PhDs), only growing by some 45%. This "supervision capacity gap" has resulted in increased pressure for doctoral supervision on appropriately qualified staff – an almost doubling of demand over the last 10 years. In addition, doctoral attrition (those doctoral students who enrol but do not finish) stands at 25%. Delays in completion exacerbate the pressure on existing postgraduate supervision capacity.

The reasons for delays in postgraduate student completion are manifold, and require careful investigation. However, the University has to date not yet invested in the kinds of postgraduate research management systems required to identify exactly where the bottlenecks are in the postgraduate process, nor to understand how to best ameliorate these. Financial insecurity is undoubtedly an important factor and inescapable reality for the majority of our postgraduate students. Currently, only 39% of postgraduate students receive any form of funding. The postgraduate merit award (PMA) is perhaps the most well-known, but only funds approximately 10% of the postgraduate student cohort in any given year. Other internal instruments are available, but these are insufficient to meet the needs of our students. External funding opportunities are often do not reach qualifying students due to an inefficient student communication strategy, which forms part of the problem of outdated postgraduate information systems and interfaces. These compromise both the postgraduate experience and our ability to effectively monitor bottlenecks and obstacles that students face along their postgraduate journeys. If we are genuinely invested in sustaining a high-quality knowledge pipeline, and in providing our students with an enriching learning experience, then we need to better understand the difficulties that mark this journey for many. Doing so requires overhauling our postgraduate information systems and digital infrastructure to enable our students to navigate their journeys smoothly whilst simultaneously providing administrators with the data required to identify challenges early and test and monitor the efficacy of institutional interventions.

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[2] Using the DHET fractional author count methodology

Although the above barriers to advancing a postgraduate strategy at Wits must be addressed, they should not constitute our primary strategic focus. Our key focus should be on pioneering postgraduate knowledge and innovation, the defining characteristics of any research-intensive university. A world-class, research intensive university must attract and retain students not merely by reputation, but through consistently innovating its programmes, curricula and forms of pedagogy. Indeed, while we have certainly developed courses and degrees that are stimulating, we have not kept pace with the cutting-edge training and knowledge generation opportunities characteristic of a rapidly changing higher education landscape that is more digitised, internationalised and agile than ever before.

Perhaps constrained by pedagogical tradition and the "supervision capacity gap", currently, the University offers a relatively limited range of postgraduate programmes. This stands in contrast to the global trend in which new impactful forms of research-focused, interdisciplinary postgraduate study are appearing in line with changing channels of knowledge and the world of work. It is thus important to systematically open up new possibilities for creating curricula and programmes that are socially and epistemically impactful. We must prioritize the diversification and innovation of our curricula and modes of delivery as a pedagogical priority to increase our overall research reputation and impact, but also to cater for a dynamically shifting world of work, the needs of which may not yet be fully visible. It is thus crucial that we develop programmes for both buttressing the academy of the future but also to seamlessly supply the intellectual power and critical thinking skills necessary to drive industry and grow employability in the country.

The legacy of the University's research with impact, and swift, secure and stimulating postgraduate strategy (Wits, 2017) must also be revisited within the context of an external review of our doctoral programmes by the Council on Higher Education (CHE, 2022). While this review is focused on doctoral programmes and thus should not dictate our strategic framework, the findings must be incorporated into the overall postgraduate strategy in an attempt to rationalise resources and align timelines. It also needs to contribute to our new Wits 2033 strategy which foregrounds our position in Africa and the Global South, innovation, the importance of conducting research with social impact, and graduating students for the public good. To do this, our postgraduate strategy must be explicitly committed to graduating students that are socially responsive and adaptive, have integrity, and think critically and creatively about the world. We want our postgraduate students to be future thought leaders that are responsive to their geopolitical position and the University's strategic vantage point that connects the Global South to the Global North. Grounded in this identity, our strategy must also support students to become graduates who will be quickly find or create meaningful employment.

We have grown our numbers. However, if we are to achieve the aspirations above, then there is much still to do. Our focus will be on changing the nature and forms of our postgraduate courses, addressing outdates administrative systems and increasing our postgraduate funding pool. Doing so requires structural, systemic change if our goals are to be reached. Many of the activities constituting our strategic approach have been already been developed and deployed in various ways in different parts of the University. However, during the next 5 years, we will consolidate, develop and evaluate these under an overarching postgraduate strategy.

Implementing a strategy of this scope will take effort on the part of our administrators and academic staff who have been significantly stretched by the pandemic and increasing work demands. However in the long-term, the implementation of this strategy should decrease the administrative workload

associated with supervision, enabling our academics and postgraduate students to focus on the co-creation of knowledge, which is ultimately the goal of any research-intensive university.

4. Our vision for postgraduate research training

Wits is synonymous with producing high-quality research. More than this however, the institution is known for training and graduating renowned scientists, scholars, industrial pioneers and public thought leaders who have made their indelible marks on the world. Our graduates have been trailblazers across disciplines and sectors. They have often left the world better than they found it. Our next strategic path will be true to this legacy by enabling the development of the kind of research training programmes that encourage critical, engaged thinking and knowledge production as part of a vibrant graduate culture that fosters collective, collaborative and internationally linked scholarship. We must equip our postgraduates with the necessary scholarly tools alongside facilitating this culture. How will we do this? We detail our theory of change (see figure 1) in the sections below.

4.1. Our theory of change

Our goal for the next five years is to produce socially engaged postgraduate thinkers and innovators equipped to use knowledge for change in the country, in Africa and across the world. Doing this will be guided by two objectives. These are:
1. To develop world-class research capacity in our postgraduate students
2. To build a facilitative and inclusive graduate culture

The following activities will be undertaken to meet these objectives:
1. Implementing programmes that facilitate interdisciplinarity, innovation and an inclusive graduate culture
2. Modernise information systems to enable evidence-based interventions
3. Increase the availability of and access to funding opportunities

The following outcomes will result from these activities:
1. Advanced research capacity in critical thinkers committed to social good
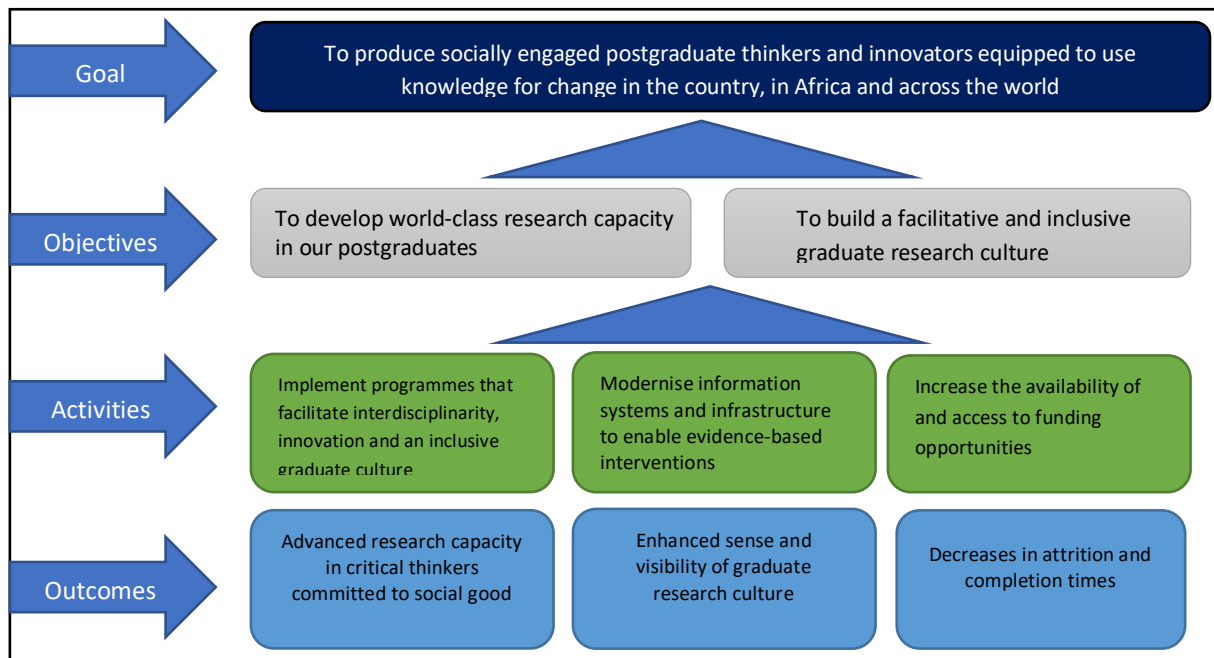2. Decreases in attrition and completion times

Figure 1. Abridged theory of change underpinning postgraduate strategy[1]

4.2.   Goal

Our goal is to produce socially engaged postgraduate thinkers and innovators equipped to use knowledge for change in the country, in Africa and across the world. In our view and in line with national consensus, at least at the doctoral level (CHE, 2022), our postgraduate students must be socially engaged, and use their knowledge to change contexts for the better regardless of sector or industry. In this sense, we envisage that postgraduate students will leave Wits with the knowledge and skills as well as critical research training to equip them to think deeply about challenges and mobilise these attributes to make meaningful positive changes in whichever context they find themselves. Although Wits expects students to be experts in their fields of interest, our postgraduates should understand the importance of thinking beyond these, by seeing the world through many lenses and thus embracing more interdisciplinary approaches to solving problems.

4.3.   Objectives

Advancing research capacity and building a graduate culture should therefore underpin all strategic activities over the next 5 years. Implicit in both objectives is the assumption that while research is often undertaken alone or in small groups at the postgraduate level, all knowledge is produced through communities of scholarship. These communities are most immediately constituted at the institutional level through supervisors and peers but extend nationally, regionally and globally. Providing a world-class postgraduate research training requires inputs from world-class supervisors and leading academics as well as access to leading technologies, but also systematic immersion into these multi-levelled cultures of scholarship, which enhance the postgraduate research experience (Buissink-Smith et al., 2013). Although Wits has created a number of valuable research events and routinely hosts workshops and postgraduate seminars, it has yet to facilitate the inculcation of an inter-faculty, interdisciplinary postgraduate research culture into its training architectures. The importance of fostering a strong community ethos that encourages collaboration is becoming increasingly evident (McKenna, 2017) and should thus be prioritised as part of taking the next step in advancing the postgraduate experience.

4.4.   Activities

To meet our strategic objectives our primary focus for the next five years will be on designing and implementing new programmes, curricula and pedagogies. Clearly, the content and form of these changes will be determined by the world-class scholars in our faculties and institutes. However, the Research Office will centrally support, coordinate and champion this activity. If we are to succeed, we need to provide seamless world-class systems to enable accurate self-assessment of research progress by students, supervisors and faculty managers, access to cutting-edge research software, equipment, data and information systems and real-time effective communication between key postgraduate stakeholders. We will also resource our students with access to an expanded pool of internal and external funding opportunities, while increasing awareness about sizeable existing funding opportunities that are frequently missed due to inefficient communication systems. All of these activities will be undertaken alongside a collaborative attempt to build an inclusive postgraduate research culture in line with the shifts in the types of programmes we will offer and the various modes in which they will be delivered.

4.4.1.   Implementing programmes that facilitate interdisciplinarity, innovation and an inclusive graduate culture

Even before the arrival of the pandemic, the postgraduate landscape was shifting significantly. The apprenticeship model of supervision, which has defined postgraduate studies for centuries in certain parts of the world, is no longer universally fit for purpose. In addition it potentially conflicts with the strategic goals of the University, which now favour collaborative, international and interdisciplinary

forms of knowledge-making. The "supervisor gap" at Wits further constrains continuing with only offering this model of postgraduate work. Furthermore, global architectures of knowledge are changing; much scientific progress is being made at the interface of - rather than within - disciplines. The contemporary employment landscape is dynamic and consistently requires the kind of agility of critical thought that we must ensure through our programming. In response to these contexts we will expand the range of courses we offer and the way we deliver them. New models of supervision and course development will bring us closer to meaningful interdisciplinary postgraduate work. There is a growing literature on how best to design and implement innovative modes of postgraduate pedagogy but our focus will be on those approaches that foster interdisciplinarity, innovation and a sense of postgraduate community. These activities will include:

- **Diversifying our doctoral programme offerings** to accommodate increasing recognition of the value of different kinds of doctoral programmes by the CHE (CHE, 2022) , including the professional doctorate and the CHE's recommendation for this format to be widely offered. While the PhD including publication has been offered by various departments across the University for several years, it has enjoyed limited uptake. Notwithstanding some of its challenges, including delays in the publication of papers, which we will have to address, we will encourage wider consideration of this format . This is because, apart from an ethical commitment to publish good science and scholarship, global competitiveness and limited resources means that funders are increasingly prioritizing students that publish. In addition, we must make a concerted effort to enhance the visibility of the research produced by our postgraduate students. This will most frequently be in the form of publication but could vary according to disciplinary conventions. Currently, the DHET Policy on Creative Writing does not make provision for the accreditation of postgraduate outputs. Clearly, this will have to change. Lastly, we will pursue greater flexibility and vertical articulation between programmes, thereby creating flexible entry and exit routes between masters and doctoral degrees. Such innovations could include a preproposal or "pre-PhD" registration year during which a range of ground research courses would be undertaken in preparation for the PhD degree to come. There is already promising evidence for doing so in the Faculties of Commerce Law and Management and Humanities. We will also design curriculated opportunities for postgraduates to incorporate innovation into their research journey through offering adjunct programmes and dual registrations. For example, in support of the University's Strategic Plan for Innovation, a PGDip in Innovation will be introduced. This will be offered as a dual qualification to selected PhD students in all faculties. The Wits Innovation Centre (WIC) will coordinate this PGDip and will make available a number of PhD positions to support PhD students engaged in linking their research to innovation. Incorporating these new forms of pedagogy will require more time to complete the PhD. We will therefore lobby the CHE and its associated stakeholders to extend the ceiling on full-time PhD study by 1 year (i.e. to 4 years). Lastly to further entrench an interdisciplinary ethos, we will establish virtual structures (either university-wide or at faculty or school level) whereby student registrations and FTEs could be sharedacross participating disciplines and supervisors.

- **Encouraging cohort approaches to postgraduate supervision**. These approaches consist of a cohort of postgraduate students who work with a group of academics, including a main supervisor and a complementary group of experts in other fields (Lange et al., 2011) around a core research problem. This type of supervision model is well-aligned to both of our objectives because it deepens learning and encourages collective and interdisciplinary thinking. Although this model may not be suitable to all contexts (ASSAf, 2010), it has been applied in small pockets across the University (e.g. PhD in psychoanalytic psychotherapy). In these cases, completion times have been reduced and the participants have especially valued the depth of scholarship provided by collective

support. The Consortium for Advanced Research Training in Africa (CARTA) has implemented this model with significant success[3]. While CARTA focuses on building skills through formal joint advanced seminars, it also emphasizes the importance of building research cultures through consistent exchanges between a range of experts and fellows. We will draw on the lessons gleaned from such experiences over time in more intentionally shifting our modes of supervision where appropriate. Of course, confirmation and/or promotion criteria would need to recognise the value of these new modes of supervision.

- **Building compulsory courses into our postgraduate programmes.** These will better equip incoming students to access the foundational research skills required to progress efficiently through the degree path. This access will address the varying levels of preparedness of students selected for our programmes, and will take the form of inter-faculty workshops facilitated by teams of expert supervisors and would be built into the timeframes of the postgraduate degree. The curricula for these programmes will be developed across disciplines and could be taught by supplementing our existing academics with visiting scholars , and/or industry specialists. A selection of these coursework units[4] will bring some baseline research competency (e.g. critical conceptualization, reading and writing skills) to all postgraduates and/or specialized in the case of courses needed for specific research programmes. This approach is already being piloted in the Faculty of Health Sciences, with reported success. In addition, our very comprehensive existing Graduate Ownership, Learning, Development (GOLD) GOLD[5] materials and graduate seminars currently offered ad hoc in schools and faculties could be supplemented and/or refined for tailored contributions to these coursework units. In combination these new forms of learning would bring greater contact and community among and between graduate students.

- **Internationally linked programmes** with an emphasis on developing teaching partnerships on the continent through the African Research Universities Alliance (ARUA), and other strategic partners. These could facilitate reciprocal accreditation thereby lowering costs. As the CARTA network[6], has shown, this can have the transformative effect of expanding the capacity of partner institutions in Africa to then train students who have been exposed to important debates rooted in the Global South (in contrast to the tendency of obtaining PhD degrees at universities in the Global North that are less sensitive to issues of colonialism, decoloniality, and inequalities). We will also pursue greater internationalisation through encouraging joint and split site degrees with partner institutions, which will equip students with a global view of their discipline. Our priority here will be to make partnering with international institutions part-and-parcel of our graduate programmes. In addition, and in line with the University's Internationalisation Strategy, we will collaborate with the Strategic Partnerships Office to put student mobility firmly on the University's postgraduate agenda.

- **Supervisor capacity development** to accommodate changes in the context of mentorship, training and supervision. Building on existing resources and offerings in the University (e.g. CLTD, WBS and CARTA), we will develop specialised supervisor training courses. These will be run out of CLTD and focus on equipping new, mid-career and experienced supervisors with the knowledge and skills to supervise and mentor across the full range of postgraduate models. Staff attendance of these will be strongly encouraged. We will also encourage suitably qualified professionals in industry to join

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[3] See https://cartafrica.org/our-impact/
[4] See https://www.vu.edu.au/researchers/candidature/research-degree-coursework-units
[5] See https://www.wits.ac.za/postgraduate-research-and-development/research-support-programmes/
[6] See https://cartafrica.org/

supervisory teams through this form of training, thereby increasing collaborations between industry and/or professional environments in our programming (Wrigley et al., 2021). Lastly, we will encourage visiting international scholars to join supervisory teams, thereby fostering a greater sense of international reach and community amongst our students.

4.4.2. Modernizing information systems to enable evidence-based interventions

The pandemic necessitated a very quick transition to an online Learning Management System, which for the most part appears adequate for teaching in an online mode. However, we require a graduate research management system that can be used as a tool for enhancing, documenting and better signposting the postgraduate journey, as well as to generate the much needed administrative data required for the real time monitoring and evaluation of student progress and intervention efficacy. To address this need, we will provide an integrated postgraduate management system or Graduate Pathing System (GPS) (see 2) that will be our primary source of information about, and communication with, our postgraduate students. It will contain:

- **An integrated research management system** through which the progress of postgraduate research can be tracked in real-time by student, supervisor and faculty. The tool will provide real-time information on each research milestone, integrate online ethics submissions and also facilitate ongoing communication between all stakeholders. This will be the primary source of information used to identify bottlenecks and obstacles that inhibit efficient research progress, and to develop and evaluate timely, evidence-based interventions. The system will also optimize matching between supervisors and students across the University via an institution-wide portal through which supervisors can recruit students for projects.
- **A resources portal** from which to tailor support through the GOLD programme. The existing platform, which has been carefully compiled by experts in their fields, could be supplemented by sharing materials with other universities and a new digital format would enable ongoing evaluation of the programme with a view to supplementing and/or adapting it as required.
- **A funding solution** that provides real-time tailored funding opportunities, and access to recruitment-related information, for an up-to-date view of employment opportunities both during and subsequent to the degree.
- **Access to cutting-edge equipment and software.** New web technologies will enable cheaper licensing and thus greater availability at scale. It is important that our postgraduate students have access to the widest range of enabling technologies and the types of equipment and instrumentation needed to undertake cutting-edge research. This is especially important in the context of securing running costs for MSc and PhD projects.

In addition to modernizing and expanding digital infrastructure and support, we will invest in providing central methodological support for postgraduate students. Initially, this will take the form of a dedicated statistical consulting unit, but will be expanded to include a wider range of methods and skills support in due course. Such support will complement existing resources such as the Wits Writing Centre. It is also crucial that Wits libraries are seen as a powerful resource for our students. To this end, we will more explicitly link the mandate of the library to postgraduate student support. This support will include the selective dissemination of information (SDI) services to support research needs by pro-actively providing recent and relevant information to postgraduates in an electronic format, including new and emerging trends in the subject field. This new form of support will be provided alongside ongoing training in all appropriate scholarly technologies (e.g. referencing software, citation database searches), and the development of subject specific library guides
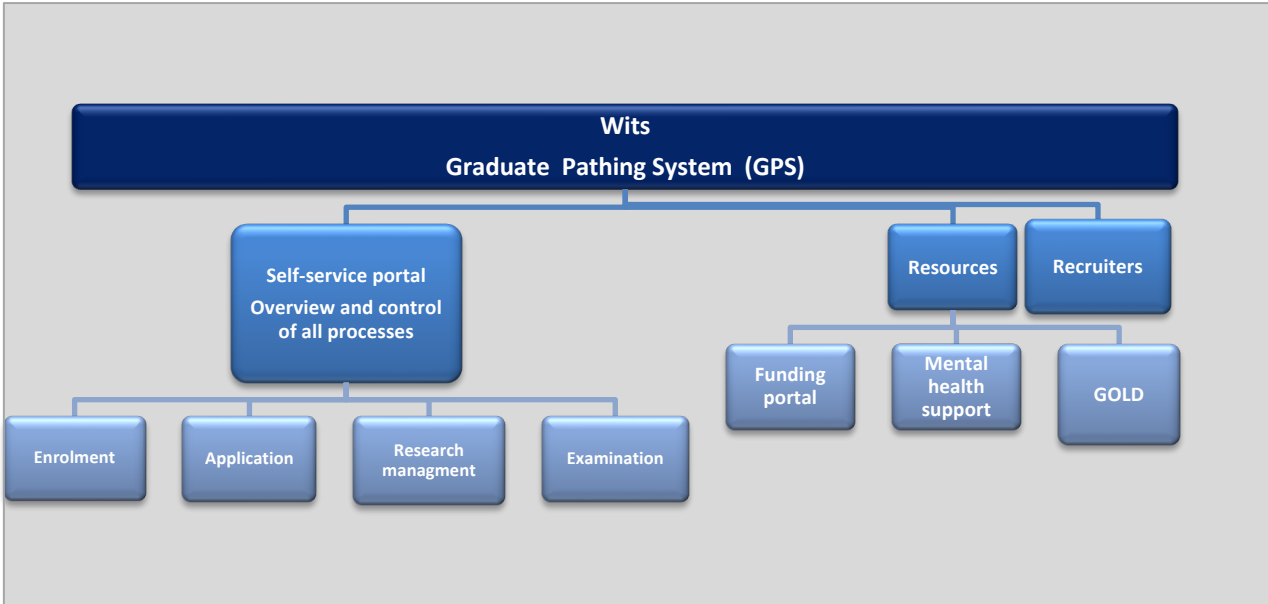
Figure *2*. **Proposed Graduate Pathing System (GPS) communication and PG management solution**

4.4.3. Increasing the availability of and access to funding opportunities

Without a significant increase in the funding pool for postgraduate studies, all other strategic objectives will fail. We will pursue an integrated funding model. Sourcing funding through a variety of vehicles and in innovative ways should be absolutely prioritised by all the appropriate stakeholders of the University. An institutional postgraduate funding plan will involve the contributions of everyone at the highest levels of the University. Our funding strategy will focus on addressing the funding crisis at two levels. First, we will attempt to increase the availability of funding. Second, we will use new platforms to source, centralise and disseminate customized information on funding opportunities that often remain untapped by our students.

- **Internally.** The University continues to rely on dated approaches to funding for students that are ill-suited to our postgraduate students. We will establish new funding instruments that recognize and reward excellence and/or need amongst the student body. In addition we will prioritize the funding of postgraduate students from available and appropriate budgetary channels. We will also explore fee waivers or refunds for students who complete on time and therefore earn the institution maximum subsidy. Other possibilities include pooling postgraduate subsidies into a hypothecated fund that could deliver sustainable directed internal funding for students.
- **Externally.** We also need to ensure that our students have access to the sometimes sizeable sources of funding advertised across various media. To this end we will develop a robust funding management system that aggregates and then targets students with the appropriate funding opportunity timeously (See GPS above). We will also explore potential "matching" arrangements with the appropriate funders. We will also leverage our strategic position in key partnerships identified in our internationalization strategy (to open up new funding channels for our postgraduate students. This strategy will support the diversification of current postgraduate programme offerings through, for example, encouraging and enabling international co-supervision and increasing registration of joint degrees that will both support students financially and innovate and enrich their knowledge pursuits.

4.5. Outcomes

4.5.1. Advanced research capacity in critical thinkers committed to social good

The combination of invigorated postgraduate programmes, that will include coursework taught by excellent Wits scholars and international visiting professors, will provide students with the very best foundations for acquiring the skills that underpin advanced research capacity. In addition, these new programmes will diffuse the supervisory workload across staff. Alongside these benefits, we will offer structural and learning support to all postgraduate supervisors through tailor-made courses. This will advance the quality of supervision across the University. Our graduate research management system will flag bottlenecks and backlogs, and these will be addressed timeously. Together restructured, cutting-edge courses supplemented by interdisciplinary advanced seminars and an improved supervision experience should provide all Wits postgraduates with a balanced, world-class research training that will equip them with the capacity to use knowledge for positive change in whichever sector they work.

4.5.2. Decreases in attrition and completion times

To better understand the drivers of Wits' high rates of postgraduate attrition and significant delays in postgraduate throughput, we need to undertake a very granular analysis of time to completion by faculty, school and programme type. The installation of the graduate management information system would enable ongoing tracking of this type, which would inform refinements in our theory of change and subsequent interventions. However, given South Africa's high levels of socio-economic inequalities it is very likely that funding disparities force poorer students to work full-time, thus leaving less time for study. This prioritization of subsistence over study would result in longer completion times and higher attrition amongst poorer students. Financial insecurity is thus considered an important obstacle to efficient postgraduate throughput. Alongside this, the degree of students' research readiness is an important contributor to completion time. To address these challenges, we will:

- **Install a postgraduate research management system** to enable early warning systems to help understand and reduce dropouts and delays.
- **Revisit the ceilings on the length of postgraduate degrees** in concert with other universities in the country.
- **Create a new internal funding framework** that caters to high achievers, the missing middle and poorer students.
- **Increasing the efficiencies of external funding** announcements so that the right students are receiving information about appropriate funding vehicles timeously (See GPS).
- **Develop formal supervisor support training** that explores ways to best develop students' research capacity, manage the student-supervisor relationship and induct junior academics into the institutional culture of the University more broadly.

4.5.3. A stronger sense and visibility of postgraduate research culture

Postgraduate research has often been described as lonely and alienating in its traditional forms. Through our focus on collective modes of supervision and interdisciplinary training via cohort models, alongside a deliberate attempt to include a sense of "graduate culture" within our overall strategy, we hope to gradually establish a greater sense of community amongst our postgraduate students. This will require working closely with the Office of the Dean of Students and the Postgraduate Association who will be considered key stakeholders in every research-related strategic decision. We believe that this increase in the perceived status of postgraduate research will translate into the enhanced visibility of postgraduate research work. There is an ongoing debate about the place of publication and other forms of output in the postgraduate programme. Our available data indicates that there was a sharp increase in 2017 in postgraduate publications as an overall contribution to the productivity of the University,

which has plateaued at approximately 8%. It is indisputable that the academic market is becoming increasingly competitive and publication is conventionally expected of entry-level academics. Moreover, if we consider postgraduate research to be inherently valuable in itself, then making it more widely available is imperative. Publication is not always the gold standard of this contribution, but the University should establish mechanisms for ways in which postgraduate knowledge and innovation can be recognized as a significant component of the University's annual research output. This objective could be incentivized by rebates on fees for students, sourced via DHET subsidies. A postgraduate magazine that will be compiled by our postgraduate students will also represent an important vehicle for disseminating postgraduate research and will also amplify the voices of these students more broadly. Through these various forms, we would hope that our focus on prioritizing a postgraduate research culture would inevitably translate into a greater postgraduate research knowledge footprint.

5. Monitoring and evaluation

It is vital to monitor and evaluate delivery on our strategy and the theory of change upon which it is built. As part of this strategy entails the implementation of a formal monitoring system that will enable the ongoing collection of evidence, it is likely that our interventions and measures of success will be refined over time. Our monitoring and evaluation approach will combine formative and summative techniques to assess the effectiveness of our processes and achievement of our outcomes. In table 1 below, we propose indicators and tools for monitoring the activities and evaluating the implementation and achievement of the outcomes of the strategy.

Table 1. Measures of achievement and success

Activity/Outcome	Indicator	Instrument/source
Implement programmes that facilitate interdisciplinarity, innovation and an inclusive graduate culture (IP)	1. Number of joint degrees	GRM
	2. Number of cohorts	GRM
	3. Number of PDips in innovation	GRM
	4. Number of supervisor courses developed	CLTD
	5. Number of supervisors trained	CLTD
	6. Number of interdisciplinary registrations	GRM
	7. Sense of community/culture	Survey
Modernizing information systems to enable evidence-based interventions (MIS)	1. Installation and maintenance of GPS	Ongoing contract
	2. Dedicated research systems developer appointed	Employment contract
	3. Student uptake of funding and communication systems	GPS analytics
Increasing the availability of and access to funding opportunities	1. Increases in overall postgraduate funding	FASMAC
	2. Increases in funding opportunity listings	Funding portal analytics
	3. Activity on funding portal	Funding portal analytics

Advanced research capacity in critical thinkers committed to social good	1. Student/supervisor ratio	BIS
	2. Participation and performance in advanced research seminars	Registrars/GRM
	3. Time to employment	Ongoing surveys
	4. Employability rate	Annual survey
Decreases in attrition and completion time	1. Average time to completion per faculty	BIS
	2. Attrition per faculty	BIS
	3. Efficiency rate (enrolments/graduations)	BIS
	4. Cohort analyses	BIS
A stronger sense and visibility of postgraduate research culture	1. Number of postgraduate research events/seminars	Faculty registrars
	2. Proportion of student/Total university outputs	BIS
	3. Productivity rate (PhD/DHET publication unit)	BIS
	4. Altmetrics	Marketing analytics

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7. Appendix 1: Expanded theory of change

Context/Problem

Apprenticeship model of supervision not solely fit for purpose:
→ Unmanageable demands on supervisors
→ Hinders interdisciplinarity
→ Lack of strong research "culture", lacking sense of community amongst supervisors and students
→ Student research not optimally visible

+

Dated information and communication systems and research support infrastructure:
→ Student problems and bottlenecks are seen late
→ Interventions are not data-driven
→ Poor communications further undermine sense of community

+

Funding models no longer fit for purpose and funding heavily constrained:
→ Students cannot fully invest in studies
→ Students' mental health at risk

=

→ **Constraints on quality training**
→ **Limited sense of graduate community and research culture**
→ **Limited sense of supervisory culture**
→ **High-levels of attrition**
→ **Low throughput rates**
→ **Increased, untenable times to completion**

Baseline

Activities

Implementing programmes that facilitate interdisciplinarity, innovation and an inclusive graduate culture
→ Diversifying our doctoral programme offerings
→ Encouraging cohort models of postgraduate supervision
→ Building compulsory course units into our postgraduate programmes
→ Internationally linked programmes
→ Supervisor capacity development

Modernizing information systems to enable evidence-based interventions
→ An integrated research management system
→ A resources portal
→ A tailored funding app
→ Access to cutting-edge equipment and software
→ Statistical support centre
→ Library support for postgraduates

Increasing the availability of and access to funding opportunities
→ Integrated funding solution
→ New funding models that better balance merit and need
→ Leveraging international networks
→ TA approach
→ Publication incentives
→ Fee waivers for timely finishers

Planned Work

Outcomes

Advanced research capacity in critical thinkers committed to social good

Decreases in attrition and completion times

A stronger sense and visibility of postgraduate research culture

Objectives

To develop world-class research capacity in our postgraduates

To build a facilitative and inclusive graduate research culture

Intended Results

Goal

To produce socially engaged postgraduate thinkers and innovators equipped to use knowledge for change in the country, in Africa and across the world
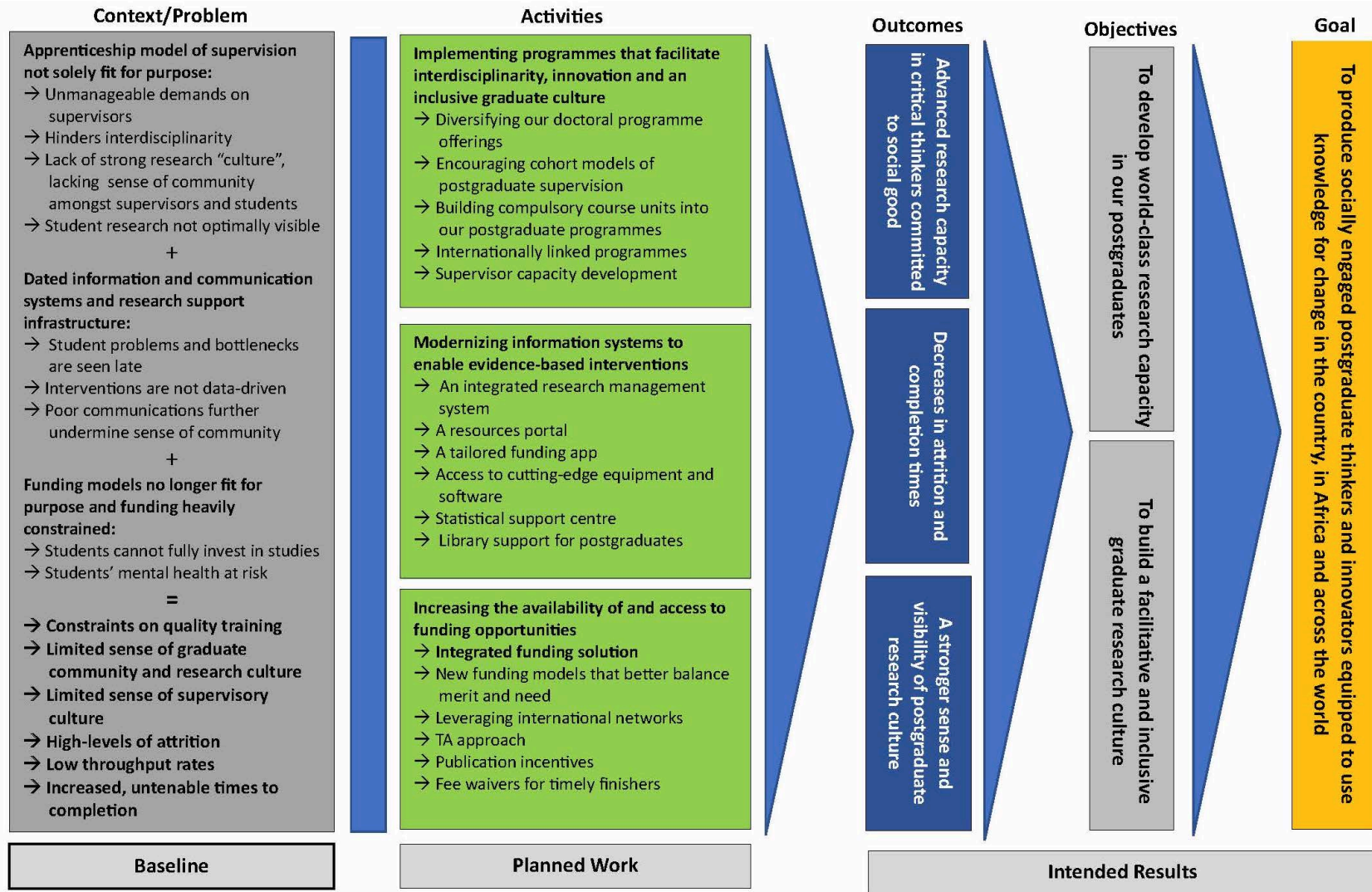
Figure 3. Expanded theory of change underpinning the postgraduate strategy

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