

Excerpts from the Report on the Senate Conference
Future World(s): New Frontiers of Transdisciplinarity

University of Pretoria

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Preface

The intention of the Senate conference, *Future World(s): New Frontiers of Transdisciplinarity*, held on 23 January 2020 at the University of Pretoria's Future Africa campus, was to give expression and substance to the commitment to advance inter- and transdisciplinarity as a means of meeting the strategic goals of the University.

The Deans of Faculties proposed to the Executive to start the academic year in 2020, and the third decade of the 21st century, with a Senate conference aimed at exploring future opportunities for interdisciplinary and, more specifically, transdisciplinary academic endeavours at the University. The focus needed to be on academic projects aimed at invigorating and significantly advancing the academic project of the University, while simultaneously addressing current and anticipated 'wicked' and seemingly intractable societal challenges, or exploring new research, entrepreneurial and teaching opportunities.

Deans had agreed that the projects they would present would focus on 'big and ambitious ideas' that advance knowledge and discovery through inter- and transdisciplinary engagement, and with a commitment to collaboration across disciplinary fields, geopolitics and institutions.

The rationale for the conference was illustrated in the statements of celebrated scholars who each influenced their fields of study in profound ways:

Creativity in science cannot be organised ... Well run laboratories can foster it, but hierarchical organisations, inflexible bureaucratic rules and mountains of futile paperwork can kill it. Discoveries cannot be planned.

Max Perutz, Nobel Laureate for Chemistry in 1962

It's important to take risks, and not to be content with the limits of your field's knowledge.

Bruce Beutler, Nobel Laureate for Physiology or Medicine in 2011

While I am interested both in economics and in philosophy, the union of my interests in the two fields far exceeds their intersection.

Amartya Sen, Nobel Laureate for Economics in 1998

Conventional people are roused to fury by departures from convention, largely because they regard such departures as a criticism of themselves.

Bertrand Russell, mathematician, philosopher and Nobel Laureate for Literature in 1950

Doing mathematics for me is like being on a long hike with no trail and no end in sight. I find discussing mathematics with colleagues of different backgrounds one of the most productive ways of making progress.

Maryam Mirzakhani, the first woman to win the Fields Medal (at the age of 38)

What, in essence, these statements convey is that innovation, generativity and ground-breaking scholarship are forged in contexts or conditions in which established conventions and narrow disciplinary boundaries can be transcended; contexts in which creativity and inventiveness are given free rein. That was the expectation of the Senate conference.

The conference programme was structured to follow four themed sessions with faculties that on the surface may not seem to cohere deliberately grouped together under themes 2 to 4:

Session 1—Institutional navigational markers: Presentations made by members of the Executive provided the backdrop to the conference; UP 2025, the University's long-term strategic and

academic plans, and some of the challenges and trends which needed to be harnessed in strengthening UP's identity and planning the way forward.

Session 2—Shaping tomorrow: Proposals by Engineering, Built Environment and Information Technology; Health Sciences; Veterinary Science; and the Mamelodi Campus.

Session 3—Re-imagining the human: Presentations by Humanities; Law; and Theology and Religion.

Session 4—Exploring new horizons: Presentations by Economics and Management Sciences; Education; Natural and Agricultural Sciences; and the Gordon Institute of Business Science.

Session 5 created the space for group discussion of the three thematic sessions which were the focus of presentations by Deans, and a final plenary session for brief report-back on the group discussions.

It was anticipated that the concluding session would allow for a discussion of concrete next steps in respect of how the proposed projects can be taken forward as part of the academic project at UP. This was perhaps unrealistic given a full day of diverse and highly stimulating presentations and discussion. Time was needed to reflect on the ideas generated at the Senate conference.

The purpose of this report is to provide a record of the Senate conference that set the tone for the academic year 2020, and in general, for Senate meetings to follow.

Professor Norman Duncan
Vice-Principal: Academic

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1. Institutional Navigational Markers

The Vice-Chancellor and members of the Executive presented the core elements of the University's long-term strategic plan, UP 2025, highlighting areas of realignment that were necessary with respect to revisions to the Academic Plan, and identifying priorities for the next five years and beyond. The deliberate intention was to foreground new frontiers of transdisciplinarity that exploit the research and teaching platforms and practices already in place, and the existing and anticipated future strengths of the University.

1.1 Professor Tawana Kupe

Vice-Chancellor and Principal

Professor Kupe's presentation framed the Senate conference in two important ways: Firstly, his focus was on one of the major challenges for universities globally — the need for transdisciplinary approaches and methodologies in research and teaching, and what it will take for UP to pursue this trajectory. Secondly, he briefly sketched what a university must be perceived or understood to be, with some remarks on achievements and areas where greater progress was needed.

Both dimensions are pivotal to ensuring the University's responsiveness to contexts, and fulfilling its role and mandate in relation to the pursuit of knowledge in the interest of the University and the broader society.

From sustaining strong, vibrant and intellectually rich cultures and environments, to platforms and the infrastructure for transdisciplinary research and teaching, he said that he was confident that UP is and will be 'a place of reference, a place to be'.

But there are also challenges. The difference between inter- multi- and transdisciplinary approaches is not always clear, with terms often used interchangeably. Transdisciplinarity is by definition outward looking. While disciplines will remain important, it is at the intersection with societal problems that the value of transdisciplinary research will be realised, making it possible to 're-inscribe' new ways of doing research and of teaching and learning.

A further challenge is in the number of strategic international partnerships and projects. While UP has a significant number of such partnerships, it is still under-internationalised: we do not have significant numbers of international staff and postdoctoral fellows, and postgraduate enrolment levels are below the planned enrolment targets. While the top scholars at UP are globally connected and engaged, there are still too few (14 A-rated and 100 B-rated scientists) — 'our peers look better'. UP needs significant participation in joint international research projects, but we are less successful than our peers in securing large competitive research grants.

Key Questions:

- What does it take to be transdisciplinary? Is UP confident that we are in that space?
- Are we clear on the difference between inter- multi- and transdisciplinary approaches?
- Do we know where our intellectual linkages are, in Africa and in the rest of the world?
- What is the extent of UP's participation in international research and programme development networks and alliances?
- Are we steering, in a systematic and strategic way, these international partnerships?
- How can UP become more successful in securing large competitive grants?

1.2 Professor Anton Ströh—UP’s performance

Vice-Principal: Institutional Planning

The focus of Professor Ströh’s presentation was on the UP 2025 strategic plan and achievements since 2012, the start of implementing this long-term vision. The ‘nested’ one-and five-year cycles of planning have allowed for the continuous monitoring and evaluation of performance, and periodically the realignment of the strategic goals and outcomes envisaged in UP 2025.

There have been some outstanding achievements, in particular related to the changing profile of students enrolled, and improvements in student success: black undergraduate (contact) students now make up 59.5% of UG students (47% in 2012); and in scarce skills fields 56.5% (47.4% in 2012). The number of black graduates in scarce skills fields increased to 59.5% in 2019 (41.1% in 2012).

The major challenge remains to improve the staff to student ratio which increased from 18.18 in 2012 to 25.60 in 2018, and to address the postgraduate: undergraduate ratio and the ratio of international PG students in the context of the enrolment targets set with the Department of Higher Education and Training. In particular, postgraduate enrolment at M and D levels have been below the targets set.

UP has demonstrated the strongest performance in the South African higher education system in three areas of research output: in 2019, 67.0% of academic staff had doctoral degrees (44.06% in 2012); the weighted M and D graduate output per academic FTE (1.55 in 2018 from 0.67 in 2012); and journal publication units per FTE staff (1.10 in 2018 from 0.66 in 2012). But research impact remains a challenge; i.e. to increase citations as a proxy for visibility and international collaboration that are reflected in co-authored publications in high impact journals.

Although the total research income increased to R832,6m (in 2018), it is still below the target set, even in nominal terms. Linked, the total third-stream income does not compare favourably to research universities in South Africa, and neither does the average staff cost per staff headcount.

Both progress and challenges set the context within which to plan towards the conclusion of the UP 2025 strategy. Additionally, the new Academic Plan needs to align with new contextual realities.

Key Questions:

- Were the enrolment targets set for 2025 realistic (75,000 students of which 20,000 would be distance)?
- How do we increase postgraduate enrolment, and the ratio of international students?
- How do we bring the staff to student ratio back to 20?
- How do we increase the impact and visibility of our research?
- What mechanisms and strategies are needed to increase research and third stream income?

1.3 Professor Stephanie Burton—the new Academic Plan: Research

Vice-Principal: Research and Postgraduate Education

Professor Burton started her presentation with questions that framed UP 2025 and the challenges identified in becoming a research-intensive university. Her focus shifted to four global trends that will shape research into the future: transdisciplinary research; global and Southern development agendas; research data management and research integrity; and new technologies.

She defined *transdisciplinary research* as ‘A collaborative journey of exploration and discovery about real and relevant issues, bringing together academic and non-academic partners, from different disciplines, integrating diverse perspectives, to achieve meaningful outcomes.’ This new approach will change how we collaborate and where we publish; draw more citations; and lead to a broader

scope of influence (e.g., in publishing, policy). Transdisciplinary research should also change how we teach, and lead to transformative change.¹

The second major trend related to the *global development agendas*, notably the global United Nations Sustainable Development Goals (SDGs) and Southern agendas², including the impact of climate change, food security, and population growth. These agendas, she noted, will create opportunities for UP to make a unique contribution regionally and globally.

Research data management is a third trend that will shape how we manage research data, and to our advantage (e.g., using artificial intelligence, accelerating new knowledge and making our research discoverable); and how we manage the complex area of research integrity (e.g., understanding public expectation and gaining trust, the ethical use of data, and digital trust and cybersecurity).

Technological change will have a major impact on research, specifically in inter- and transdisciplinary applications and the use of big data (e.g., synthetic biology contributing to sustainability in designing DNA 'for purpose' using sequence data); and linked to food security, plant health, plant production and adaptability, in the context of climate change.

Prof Burton focused, in conclusion, on a framework for the new Academic Plan 2020–2025 that will:

- build impact (citations and broad societal impact)
- create an enabling environment
- position UP as a global African university, and
- use UP's existing and new research platforms.

She noted that the UP research platforms — Future Africa, UP Javett Art Centre, Engineering 4 and the most recent development, Innovation Africa — offer physical and intellectual spaces for collaboration. These exceptional platforms for research and teaching are in addition to the many other opportunities that exist for inter- and transdisciplinary research at UP.

Key Questions:

- How do we develop transdisciplinary research, and how should we train our students in transdisciplinarity?
- What are our opportunities to make a unique contribution to global and Southern development agendas?
- How should we research, accommodate and exploit AIs?
- How can we use our research data to promote the visibility of our research?
- How do we best use our research data to achieve our strategic goals?
- Should we have a transdisciplinary focus on the socio-economic impacts of climate change and big data?
- How do we develop broader impact?
- What should be our international focus?
- Are we using our research platforms to the best advantage?

¹ Jamila et al., *Sustain Sci* (2018) 13:191–204 197-123.

² Cf. the AU Agenda 2063, and South Africa's National Development Plan—2030.

1.4 Professor Norman Duncan—the Academic Plan: Teaching and Learning *Vice-Principal: Academic*

Professor Duncan's first focus was on what the 2012 Academic Plan had committed the University to do and achieve, the interdependent relationship between excellence in teaching and the academic project, and questions that needed to be asked in re-developing the Academic Plan.

The 2012 Academic Plan elaborated in some detail on the teaching and learning imperatives that must be considered in proactively shaping the University's future trajectory. These include issues such as the interdependent relationship between teaching and research excellence; the need to promote enquiry-led and blended learning; the importance of students becoming independent and autonomous learners; the optimal use of appropriate technologies; the need to strengthen synergies between undergraduate and postgraduate programmes; and the need to rationalise and streamline the diversity of subject offerings.

The differential student success rates based on historical social inequalities was a major focus of the 2012 Academic Plan, as were the development of graduate attributes aligned with the developmental needs of South Africa and the demands of a young democracy. In this context too, social and community engagement was considered both a social imperative and a means of advancing the University's teaching and research excellence aspirations.

Briefly mentioned in Prof Duncan's presentation were the initiatives that have targeted student access and success, including undergraduate degree completion and student success rates; the use of e-technologies in teaching and learning; the extent and quality of data-based decision making to maximise student success; and employability and entrepreneurship rates.

There is evidence of success: 93% of UP graduates find employment or continue with postgraduate studies within months after graduation; the current undergraduate module success rate stands at 83.5%, and cohort studies of degree completion rates have shown an improvement.

In the second part of his presentation, Prof Duncan provided, in his role as convener of the Senate conference, an overview of the rationale for the conference, here captured under the Preface.

Key Questions:

- Have we sufficiently foregrounded and promoted enquiry-based learning and harnessed technological advances in teaching and assessment practices?
- Are we fully harnessing the benefits of UP's hybrid approach to teaching and learning? For example:
 - Given the expected growth in student enrolments over the next several years, and the increasing demands on the University's infrastructural resources, should we not consider reducing the number of contact lectures per module?
 - Given our focus on enquiry-based learning and the hybrid approach to teaching and learning, should we not re-assess our assessment methodologies?
- Does our spread of academic disciplines adequately align with the needs of contemporary society and the research aspirations of the University?
- Is there scope or a need for the development of new disciplines? Which are these?
- Are we paying sufficient attention to 'who we teach and the curriculum challenges associated with harnessing different learning histories and varying levels of preparedness', as we are invoked to do by the 2012 Academic Plan?
- Are we paying sufficient attention to the differential needs of our diverse student body?
- Are the graduate attributes that we wish to inculcate in our students appropriate for our times and context?

2. Shaping Tomorrow

The second session covered the transdisciplinary proposals from the Faculties of Engineering, Built Environment and Information Technology; Education; Health Sciences; and Veterinary Science.

2.1 Professor Nelishia Pillay— Education 4.0 and beyond

Head of Department: Computer Science

Professor Pillay, on behalf of the Dean of the Faculty of Engineering, Built Environment and Information Technology (EBIT), covered the important issue of how the Fourth Industrial Revolution (4IR) will impact on teaching in higher education institutions. The new technologies, such as intelligent tutoring systems,³ automated teaching assistants, automated assessment, chatbots for tutoring,⁴ and educational data mining will create new ways of learning and assessment, and of supporting students.

In response to these developments, the presentation covered the establishment of the Centre for Emerging Technologies for Sustainable and Lifelong Learning (CETSULL), which will seek to address the UN Sustainable Development Goal 4 of quality education, lifelong learning and accessibility for all. She noted that the work of the Centre will be interdisciplinary, bringing together academics from computer science, education and cognitive science, as well as collaborators from government and industry.

The core of the presentation was related to the use of digital technologies as a means of improving the University's strategic goals and targets with respect to teaching and learning. The proposal relates to a theme that emerged at the conference, i.e. 'Using technology to improve student outcomes'; possible approaches to this opportunity are discussed briefly in Section 5.

2.2 Professor Nthabiseng Ogude—From STEM to STEAMy futures

Dean: Mamelodi Campus

Professor Ogude covered the important question of how UP can be at the forefront of addressing educational pipeline problems and foster rapid educational innovation. Her proposed approach involves developing the Mamelodi campus as a social innovation space, and establishing collaborative research in the five focus areas of broadening educational pathways; science and the urban environment; leveraging the arts and culture; building strong and healthy neighbourhoods; and economic development and entrepreneurship. In particular, she proposed that the usual focus on science, technology, engineering and mathematics (STEM) should be broadened to STEAM, where the latter includes art, the argument being that art can be effective in building scientific literacy.

The presentation appeared to make a case for contributions from a number of disciplines working within their own disciplinary boundaries in a common project coordinated by the Mamelodi campus.

2.3 Professor Tiaan de Jager—Smart communities and digital healthcare

Dean: Faculty of Health Sciences

Health sciences are changing as a consequence of digital health and big data. As a result, there is a moment of opportunity for the University to enhance its capability in digital healthcare by

³ Cf. Jill Watson at <https://www.cc.gatech.edu/holiday/jill-watson>

⁴ See <https://www.ibm.com/cloud/learn/chatbots-explained>

establishing big data platforms; employing technology to create and establish smart digital healthcare and surveillance methods or devices; and integrating virtual technologies and artificial intelligence into healthcare.

Professor de Jager's presentation made a strong argument for upgrading the research and teaching related to these three areas. The transdisciplinary potential of what was presented will be developed in the next iteration of the proposal.

2.4 Professor Vinny Naidoo—Enhancing lives through the use of smart vet medicine

Dean: Faculty of Veterinary Science

Professor Naidoo provided an overview of the trends in veterinary medicine and the opportunities for new technologies, such as the use of drones for monitoring cattle, remote collection of respiratory and body temperature data, scanning of embedded microchips from a distance, and non-injectable technologies.

Although developments like green farming will require new approaches and would be open to multi-disciplinary research approaches, the transdisciplinary potential of this project will be developed in the next iteration of the project.

2.5 Summary of the group discussion and plenary feedback

The group discussion covered a number of issues for the implementation of transdisciplinary research, including the way in which the National Research Foundation evaluates researchers, and how it is easy to become a 'jack of all trades, but a master of none'. It is also clear that we need both specialists and transdisciplinary practitioners; we need student voices in the content of what we teach, and how it is taught; and we need private and public organisational support for initiatives in healthcare, the use of cell phones, overcoming the digital divide, climate change, what would make a good African city, among others.

It was proposed that a possible way forward would be to create a virtual centre for transdisciplinary research and run a single pilot transdisciplinary project, which would allow institutional learning in implementing the approach and could be used as the basis for a larger-scale programme.

3. Re-Imagining the Human

The third session included presentations from the Faculties of Humanities; Law; and Theology and Religion.

3.1 Professor Vasu Reddy—The art and science of 'blood'

Dean: Faculty of Humanities

Professor Reddy's presentation focused on what he called 'an ideas project' to show ways in which the concept and metaphor of blood can be used to generate ideas about transdisciplinary projects. Blood is biological and material, he noted, but also deeply sociological and is fundamentally about human, animal and societal relations and entanglement.

Moving from the purpose of the topic chosen — science as the dominant discursive authority in our understanding of the meanings and value of blood — to its physiological, symbolic and cultural meanings, Prof Reddy illustrated the wide range of meanings across disciplinary fields, customary practice and societal norms (he listed more than 20). The point, he said: blood initiates questions about epistemology, ontology, discursivity and representation, relationality and entanglement and

could serve as a powerful device to explore possibilities of intellectual and empirical work in transdisciplinary projects.

Prof Reddy deliberately presented an ideas project; i.e. blood as an exemplar and device through which to explore possible questions, issues or problems, and ways in which transdisciplinary projects would be appropriate.

3.2 Professor Elsabe Schoeman—The question for justice: beyond the now

Dean: Faculty of Law

Professor Schoeman's focus was on the search for justice within the litigation landscape, and more specifically, on transnational disputes concerning mining and the extraction of natural resources in Africa. She gave examples of class action cases brought by plaintiffs from countries in Africa, but which were heard in courts in London, New York, The Hague. Why? The answer, she said, starts with access to justice, and points to the need for a re-evaluation of the litigation landscape and to exploring new avenues and methods of dispute resolution.

Two overarching issues are important: the wealth of Africa must benefit its people, and the environment must be preserved. Prof Schoeman said that it was important to look beyond the settlements reached (most often between multinational corporations and individuals): at a substantive justice level, the challenge is to find appropriate remedies to address and redress harm in the context of African communities and to the environment.

This example illustrates several interesting issues which would make a transdisciplinary approach particularly relevant to the question of transnational justice and protecting the environment.

3.3 Professor Jerry Pillay—In pursuit of life-affirming futures

Dean: Faculty of Theology and Religion

Professor Pillay presented the perspective that theology and religion can be used to find new solutions to a number of contemporary challenges, including the UN Sustainable Development Goals and the goals captured in the African Union Agenda 2063. The faculty has identified a research focus on 'life-affirming futures', with three interconnected themes:

Religion and sustainable development: the influence of religion in mediating or denying sustainable livelihoods, economies and ecologies — the idea is to bring religion into discussion with sustainable development and how theological perspectives can facilitate the achievement of the goals.

Inclusive cities and communities: to consider Africa's urban futures, from the perspective of dignity and social justice, and secure urban-rural spaces and settlements — the concern is with the socio-spatial transformation of (South) Africa's cities and the urgency of engaging Africa's urban futures. There are several sub-themes, including an embrace of informality; homelessness and housing; transnational migrants and integration; child-inclusive cities; the urban elderly and more, all of which provide several inter- and transdisciplinary opportunities in contributing to better cities.

Science and religion: embodied personhood, technology and life against the backdrop of rapid technology change and the fourth industrial evolution, the project aims to address two of the six themes in the AU Agenda 2063, and to integrate scientific and theological insights.

Prof Pillay made the point that science and technology advances are not neutral and need to be tailored to meet the needs of Africa.

Already embedded in the faculty's research practices is a methodological approach that harnesses diverse epistemologies and ontologies, in a critical-constructive manner, in order deliberately to retrieve and engage local and indigenous sources of knowledge, lived experiences and spiritualities.

3.4 Summary of group discussion and plenary feedback

The presentations made in the third session included three language-based faculties and it was therefore perhaps unsurprising that the group discussion foregrounded the importance of narratives and storytelling, in balance with scientific research. All three projects had strengths: blood as an exemplar showed the importance, in problem-based research, of the stories around things that matter; the case for legal justice illustrated how politics, sociology and economics become part of substantive justice; and the themes proposed by theology and religion, that what people believe will have an impact on what they do and how they respond, which is all the more interesting in a post-faith world.

The point was also made that we should stop defining ourselves by what we are not. The split in the academy between the sciences and humanities presents an unnecessary barrier to transdisciplinary research.

A further point was that UP's research platforms are large-scale platforms. As valuable as these are, there is also a need for 'micro-platforms' that make it possible to build linkages and relationships through informal networks which, in turn, can become fertile ground for conceptualising transdisciplinary projects.⁵

4. Exploring New Horizons

Four faculties were grouped under this thematic focus: Economics and Management Sciences; Natural and Agricultural Sciences; Education; and the Gordon Institute for Business Science.

4.1 Professor Elsabé Loots—Advancing in the digital world to create value for society

Dean: Faculty of Economics and Management Sciences

Professor Loots' presentation focussed primarily on the changes in the world of work, and how the University can better prepare students for the challenges and needs which they will face in participating in the changing worlds of work. In her first set of slides, Prof Loots highlighted the three major global challenges of inequality, technological (digital) transformation and climate change. She noted that the future of work will not only be about university degrees but about skills, and that 20% of the fastest growing skills will not require a degree. Digital transformation, which is changing the ways in which we live, learn, produce and consume, requires continuous curriculum change.

Students' mindsets are also changing, becoming more consumer oriented, with demands for tangible results and engaging experiences. In terms of teaching, the University needs to be more technology savvy and multidisciplinary, and adopt an approach to lifelong learning in exploring new teaching models. Importantly, programmes need to cover the areas of academic citizenship, analytics literacy and humanics (human-centred literacy), where the latter includes creativity, entrepreneurial thinking, critical reasoning and ethics.

⁵ See, for example, the proposal of GIBS on pages 13-14.

In summary, the presentation covered the important notion that ‘The future does not belong to the know-it-alls, but to the learn-it-alls’.

4.2 Professor Chika Sehoole—Educating beyond the boundaries

Dean: Faculty of Education

Professor Sehoole’s presentation also focussed on preparing students for the future world(s) of work and he suggested that this could be achieved through re-engineering the educational spaces to become learning arenas which foster collaboration and problem- and project-based multidisciplinary approaches to education. The teachers of tomorrow will require a solid grounding in the cultural as well as the disciplinary aspects of their classrooms.

In the realisation of these new requirements, Prof Sehoole proposed that the Groenkloof campus could be made into a laboratory for transformative pedagogies. In this regard, his presentation clearly talks to the theme of preparing students for the future world(s) of work.

4.3 Professor Barend Erasmus—Thinking beyond sustainability

Dean: Faculty of Natural and Agricultural Sciences

Professor Erasmus introduced his proposal for a transdisciplinary project by outlining the huge changes to the earth as a consequence of human activity, and how we need a new discussion on (and new solutions to) the issue of sustainable development. We are now many people on a very small planet; how do we fundamentally change the way in which we interact with the earth and others? Finding new solutions is especially important if we are to avoid, in this era of the Anthropocene, breaching the tipping points of the planet and causing irreversible negative change.

This question is indeed the wicked problem of the present and, as noted by Prof Erasmus, it can only be solved through the transdisciplinary approaches of holistic thinking, new knowledge on sustainability, awareness and integration, and acting for positive change. Moreover, the project needs to be upscaled from ‘seeds to forests’.

In his proposal for a UP project, Prof Erasmus identified the use of transformative pedagogies (holistic thinking, agents of change) and transformative partnerships (partners and knowledge holders outside academia, shared outcomes, new governance), together with the use of open source data and open access publications. He argued, in thinking ‘beyond sustainability’, for the importance of starting with small-scale interventions which could serve as learning mechanisms, and where successful, be scaled-up to broad initiatives; in this way, seeds ‘can grow, scale, evolve, adapt and interact to achieve larger impact, and eventually, systemic transition’.

4.4 Professor Nicola Kleyn—Fostering scholarly networks

Dean: Gordon Institute of Business Science (GIBS)

In the final presentation of the fourth session, Professor Kleyn outlined a project which would attempt to broaden and deepen the inter- and intra African-focused scholarly networks of the University of Pretoria.

It is clear that stronger social networks between UP academics and other scholars in Africa are essential in extending the international influence and impact of the University. There are a number of current constraints, including a lack of a critical mass in African institutions, transport, funding, language and borders. On the other hand, there are many enablers, including technology and a network of passionate African scholars with a strong interest in the advancement of the continent.

In response to this opportunity, GIBS has hosted an initial meeting to discuss ways of energising ('oxygenating') the informal network on the continent. The group developed a vision statement as follows:

'For passionate African-focused business and management scholars, the Network Empowering African Management Scholarship (NEAMS) is an inclusive network driven by globally recognised scholars that connect, develop, empower, and celebrate members because the world needs Africa's impactful, authentic thought leadership.'

In her proposal, Professor Kleyn suggested that the University could expand the scope of the GIBS initiative.

4.5 Summary of group discussion and plenary feedback

In his summary of the group discussions, presented in the plenary session to the conference, Professor Alex Antonites commended the presentations as being interesting, innovative and relevant. However, it was the view of the group that the presenters had been unable to disentangle themselves from their disciplinary boundaries or silos, perhaps as a consequence of the size and complexity of the University. Overall, it was felt that there would be widespread and positive interest within the University in the proposed projects, with the drivers of interest being the importance of making a meaningful contribution through solving real-world, significant global problems and an overall understanding of the imperative for transdisciplinary research.

The group recognised the link between transdisciplinary research and the overall ranking or international impact of the University, and agreed that a strategy of investing in, and actively supporting transdisciplinary approaches could help the institution to meet its targets in terms of research impact. The group further noted that such research could also contribute towards global sustainability and ensure a sufficient response to the major challenges of the future.

5. Concluding comments

The Senate conference surfaced a number of important issues for consideration in strategic planning at the University, which we have grouped into three broad areas; i.e. technologies to improve teaching and learning, the review of the University's extant Academic Plan, and proposals for transdisciplinary research.

Teaching and learning will be radically altered by digital technologies. Given that this activity is core to the University, it is important that it not only remains competitive, but also seeks to be a leader in the application of such technologies as a means of improving student outcomes and experiences. It is suggested that the University should act not only as a purchaser of educational software, but also as a developer. Such an approach is closer to the model of in-house research and development, funded from the revenues of the organisation, which may generate a spin-off company/ies.

The conference also raised a range of issues that should be considered when the University reviews its 2012 Academic Plan.

In terms of the proposals for transdisciplinary research, all the proposals have transdisciplinary potential. However, it was agreed to further develop all proposals to enhance and actualise this potential.

6. Next steps

The proposals presented by the Deans will now be further developed by the Deans for presentation to members of Senate in the second semester, where after the proposed projects will potentially be implemented. So as not to take up undue time in a Senate meeting, a special meeting will be organised for Senate members interested in discussing the evolution, finalisation and implementation of what had been presented at the Senate Conference on 23 January 2020. The Vice-Principal: Academic and the Deans will on 10 March decide on the following deadlines:

- Due date for the submission of revised proposals;
- Date for the discussion of all revised proposals by the Committee of Deans;
- Date for the presentation of finalised proposals to members of Senate; and
- Formal adoption of proposed initiatives.

As promised during the conference, the process of reviewing the University's Academic Plan will commence before the end of the first semester of 2020. A plan for this process will be submitted to the Executive for approval.