REINVENTING SOUTH AFRICA’S UNIVERSITIES FOR THE FUTURE
Cover: close-up image of wood, Marina Mazur (Unsplash); this image: summer and winter tree (Shutterstock).
A synthesis report on the National Higher Education Conference

Hosted by Universities South Africa (USAf) at the CSIR International Convention Centre

2 to 4 October 2019
Pretoria, South Africa
A recurrent theme throughout the conference held in October 2019, albeit often embedded in discussions, was our situatedness in history and local realities, and simultaneously in a twenty-first century world. Little did we realise, at the time, that this report on *Reinventing South Africa’s Universities for the Future* will be published in the context of a world-wide pandemic that will fundamentally alter our lives and sense of well-being, as well as how universities and knowledge institutions in the service of society will need to continue — nonetheless — into the future.

The enthusiasm of the collective *Universities South Africa* (USAf) to tackle the challenges that span the transformation of our institutions needs to be shaped and tempered by our knowledge of current realities. In an era of great uncertainty, our actions — perhaps more than ever before — need to be guided by the evidence and science available to us and inform (and be informed by) the decisions reached by responsible leaders in our local, regional and global contexts.

Over the past weeks, the role of universities as knowledge-intensive institutions has been thrust into the spotlight, be it the race against time in developing a vaccine for the Covid-19 virus, tracking and modelling the spread of the virus, ensuring that our academic and research programmes continue, or in the many other ways that have included the mourning of those close to us who have died as a result of the disease.

The USAf Board of Vice-Chancellors had committed, in March 2018, to hosting an annual or bi-annual national higher education conference to take stock of progress and achievements, and of the challenges that needed to be prioritised. I would like to extend my gratitude to the Vice-Chancellors of our 26 public universities for their foresight and support in making the first National Higher Education conference a success.

A central message of the conference was that our collective focus needs to shift to the type and trajectory of change we want for our universities, and for the sector and society in which our institutions are embedded.
Held from 2 to 4 October 2019 at the CSIR International Convention Centre in Pretoria, the speaker line-up delivered thought-provoking perspectives and the delegates were equally engaging — with some sessions sparking off more rigorous debates than others. Attended by over 200 delegates representing academics, researchers, postgraduate students, policy makers as well as representatives of business, the conference was also graced by the presence of three international speakers from the Association of Commonwealth Universities, the University of Oslo in Norway, and the Nairobi-based United States International University.

The report follows the contours of the main themes of engagement in plenaries and highlights some of the ideas presented in parallel sessions. Instead of a sequential ordering, the report follows a thematic focus on the main points of presentation, discussion and commentary. The concluding section, as is convention, points to the way forward with reference to specific actions and recommendations.

**Acknowledgements**

The conference proved to be a much-needed platform of engagement with key issues, at the centre of which was reimagining the higher education sector and its relationship with its publics. It was also a solid platform and an excellent benchmark for how to pitch future events of this nature.

I would like to extend my gratitude to all involved and, in particular:

- The USAf Board for its support for this new initiative
- The five USAf Strategy Groups for conceptualising and planning the parallel sessions
- The chairs, speakers and presenters who contributed their time and expertise
- The delegates — for their support, active participation and valuable feedback
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- ‘Mateboho Green and the writers of articles published in USAf’s Daily Higher Education News (DHEN) following the conference — Gillian Anstey, Patrick Fish and Charmain Naidoo
- The writer of this report, Hanlie Griesel.

**Professor Ahmed Bawa**

*CEO: Universities South Africa*

Where presentation slides were made available, hyperlinks are given and in one case to a paper prepared for the conference.
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The National Higher Education conference, hosted by Universities South Africa (USAf) from 2 to 4 October 2019, drew a wide range of presenters and participants from universities and national departments and entities, notably the Department of Higher Education and Training, the Council on Higher Education, the Department of Science and Innovation, the National Research Foundation, the Human Sciences Research Council, and the Water Research Commission.

International participants included the Association of Commonwealth Universities, the University of Oslo in Norway, and the Nairobi-based United States International University.

The overarching theme, Reinventing South Africa’s Universities for the Future, was a deliberate focus on the pressing issues that are likely to face South African universities into the future. The sub-themes were broadly aligned with the foci of USAf’s five strategy groups: transformation, teaching and learning, research and innovation, funding, and the world of work. There were nine plenary sessions and 15 parallel sessions in total, and over 200 participants which, taken together, contributed to the overall success of this inaugural event.

While predictably much of the input was grounded in realities of the present (and past) from which to anticipate likely future scenarios, the debates also centred on practical ‘next steps’ and the research-led evidence that is needed to inform policy and planning.
The multi-layered discussions at the conference foregrounded a number of recurrent issues, in plenary discussions and in parallel sessions where narratives were either re-directed, reinforced, or indeed subverted. In broad terms, these issues included:

- The role of universities in society
- Transformation in all its dimensions
- The quality of teaching and learning, and of research
- Integrity and ethics in research and innovation
- A national plan for a differentiated post-school system of education and training
- The impact of rapid technology change
- Open science systems and open access
- The consequences of a changing labour market and world of work
- Funding and sustainability.

Internationalisation was notably not foregrounded in most of the presentations and discussion, perhaps to a large extent due to the embeddedness of universities in regional and global networks, and hence the taken-for-granted assumptions about the importance of frameworks, networks and actions that reach beyond our local borders and imperatives.

The report is structured to follow the contours of the ‘big issues’ addressed in plenary; and secondly, to provide a synthesis of the main points of presentation and discussion in the parallel sessions, grouped under the five strategic themes of the conference.
The opening address set the tone of the conference and framed the strategic opportunity the event provided for the higher education sector and its stakeholders to reflect on what it will take to reinvent South Africa’s universities for the future.

The Minister of Higher Education, Science and Technology, Dr Blade Nzimande, focused on three issues: universities as a national asset, transformation, and key priorities over the next five years. Professor Wim de Villiers, Deputy-Chair of USAf and Vice-Chancellor of Stellenbosch University (SU), welcomed participants, and outlined the rationale for the conference theme and its design.

2.1 Universities as a national asset

In his opening remarks, Minister Nzimande positioned 2019 as an important juncture in the history of higher education: it was a decade since the establishment of the Department of Higher Education and Training (DHET) as a separate department from basic education, now grouped with the Department of Science and Innovation (DSI) in the same ministry. This, it was anticipated, would strengthen science and innovation in South Africa. It was the beginning of the sixth administration in South Africa’s young democracy, and there were great expectations of the role and contributions of universities. Much still needed to be achieved.

Universities are national assets, central to the development of the country and the African continent, Minister Nzimande said. Transformation at our universities needed to address racial, class and gender issues, social justice, poverty, inequality and violence. The latter, he noted, was a manifestation of the economic and social
distress of the country and region. Drawing on the historian Charles van Onselen’s book on migrant labour, Dr Nzimande made reference to the social reproduction of inequality regionally and on the continent where societies continue to battle to make ends meet.

Within this broader contextual frame of reference, he set out priorities for the medium-term: planning the postgraduate pipeline and achieving the right balance between foreign and South African postgraduate students; making a planned differentiated higher education and training landscape a reality; reviewing challenges and gains, in particular with respect to the funding of students (e.g., the unintended consequence of bursary funding for undergraduate students was that funding was diverted away from postgraduate students); addressing inequalities in the system, and importantly also, the urban-rural divide as is manifest in historically disadvantaged institutions; planning enrolment growth in line with the National Development Plan—Vision 2030; and shaping the role of universities in the post-school system of education and training.

Dr Nzimande concluded his opening address by emphasising the importance of creating spaces for constructive dialogue.

2.2 Reinventing South Africa’s universities for the future

Professor Wim de Villiers outlined the two-fold imperative for South Africa’s universities: firstly, to change institutional cultures better to accommodate new generations of students and staff; and secondly, to respond appropriately to the challenges and opportunities presented by the rapid technological developments associated with the fourth industrial revolution (4IR).

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Universities are some of the most enduring institutions in society. Yet the pace of change — brought about by several forces, including technological advances, global and local economic forces and demographic shifts — makes it necessary that universities adapt to new circumstances.

At the same time, South African universities continue to be influenced by their own and the sector’s combined histories, and that of the country. In different terms, institutions need simultaneously to confront the impact of the past on the present, while anticipating the possible future(s) of universities.

This situatedness in history and local realities, and at the same time a twenty-first century world, remained a recurrent theme throughout the conference.

Drawing on the work of Jeffrey Buller, Prof De Villiers noted that the choice was not whether universities should change, but how to change — change was already here. The focus now needed to shift to the type and trajectory of change we want for our universities, and for the sector and society in which our institutions are embedded. But institutional transformation and innovation — that is, deep and extensive change with an eye on systemic sustainability — is not easy. It creates uncertainties and places high demands on all involved.

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The eight plenary presentations that spanned the conference are grouped under four broad themes so as to weave together an overarching narrative:

The role of universities in society; South Africa’s national post-school system of education and training; the impact of new technologies on African universities; and open science and open access.

### 3.1 The role of universities

The role of universities in society was the focus of two plenary speakers:

- Professor Peter Maassen, Professor in Higher Education Studies: University of Oslo, Norway
- Professor Chris Brink, Emeritus Vice-Chancellor: Newcastle University, United Kingdom, and former Vice-Chancellor of Stellenbosch University.

**Profiles, partnerships, problem-solving**

--- reconfiguring university-society relationships in the 21st century

‘What kind of university for what kind of society is the question that ought to inform and drive the third missions of universities.’

**Professor Peter Maassen** presented his analysis of what he broadly labelled the ‘third mission’ of universities, and the need to bring into equal balance the three missions of universities. He framed this third mission by describing three ideas or ideologies about universities: as service to society, instruments for national agendas, and as social institutions.

Traditional university-society relationships were under pressure, he said. There are growing expectations of universities’ contributions to society, and an increasing political focus on impact. Both have forced universities to re-focus on their contribution to the ‘public good’. Universities have also had to adapt to key
developments in society, including: accelerated technological; economic and social change that have characterised the knowledge society; grand societal challenges (or ‘wicked problems’) that have rendered conventional scientific responses inappropriate; intensified global science competition; and innovation and digital technologies that are now part of the fourth industrial revolution.

While there has been a massive growth in the two core missions of universities — education (teaching and learning) and research — there is no clear trend in the third mission of universities, which includes knowledge transfer and social engagement. Based on a recent study undertaken in six countries across five continents, his central thesis is that third missions need to become part of the foundation and basic mandate of universities into the future. As things stand, there is typically an institutional imbalance between knowledge transfer and social engagement activities, a lack of integration and insufficient funding for third mission activities, and a lack of a structural and strategic positioning of universities’ contribution to the public good.

‘What kind of university for what kind of society’ is the key question that ought to inform and drive the third missions of universities. Given great institutional diversity in South Africa and globally, there can be no homogenous ‘one-size-fits-all’ model which can be applied to all universities.

Beyond engagement — the idea of responsiveness

In the final plenary of the conference, Professor Chris Brink provided an important bookend to the opening address of the Minister of Higher Education, Science and Technology, in the idea of knowledge in service of society. His presentation was in large part based on the detailed arguments developed in his recent book, *The Soul of the University — why excellence is not enough*. For Prof Brink the question that ought to direct the strategies of universities is, ‘What are universities good at, and good for’. His central thesis is that the traditional linear model of knowledge production is no longer sufficient (i.e. curiosity-driven research leading to applied research, innovation, markets and products). What is needed is a model that begins and ends with society; that is, knowledge production that starts with a problem, and integrates scientific excellence with social responsibility, and through challenge-led research, responds to local and global challenges.

4 Bristol University Press, UK 2018.

‘…the idea of knowledge in service of society cuts across the idea of knowledge for its own sake.’
He noted that there is increasing evidence that the ‘good for’ question is being addressed, in publications and growing networks globally. For example, the recent Bologna group of universities’ meeting captured the position that should be taken: ‘Universities do not exist for themselves or for members of their academic communities in the first place. Their role and use is a societal one.’

In the South African context, and in reference to a text by Prof Ahmed Bawa about the #FeesMustFall movement, the social compact of universities envisioned seems to have become lost in recent years:

‘By 2015 it became clear that there had been a rapid erosion of the standing of the social compact as a guiding principle for higher education’s role in [South Africa] … For some student leaders during the upheavals that racked the higher education between 2015 and 2017, the universities are seen to be a part of the infrastructure for a system that reproduces (new) elites while undermining the capacity of the poor to emerge from poverty, inequality, etc. … The development of a new social compact between the public university system and society is required if we are to transcend the more traditional roles of universities …’

Universities are compelled to refocus on their social compact with society, for the good of science and for the well-being of society.

**Points of discussion**

There were several areas of overlap and points of agreement in the two plenary presentations. The main point of difference was in the structural and strategic positioning of universities’ responsibility to society. For Maassen, the third mission needs to be positioned as equal to the two core missions of universities; in contrast, Brink’s circular model of knowledge production makes universities’ social responsibility part of the core missions of teaching and research.

For ease of reference, the main issues and questions raised in the two plenaries are grouped together with presenters’ concluding comments tagged at the end:

One way of balkanising the third mission is precisely to establish a third mission that competes with teaching and research. The third mission needs to intersect with the first and second missions so that it becomes integrated and is funded through core funding. (Ahmed Bawa, USAf)

Societal challenges are actually in our classrooms; research and pedagogy need to be responsive to these contexts. (Suellen Shay, UCT)

How do we define and distinguish community (or societal) engagement as a third mission? If that is not possible to do, institutions are back to ‘business as usual’. (Jan Botha, CREST)

In response to Prof Brink’s presentation: There is a move back to curiosity-driven research, in Europe at least; we need to acknowledge that we do not know what we do not know. Further, if the distinction between curiosity-driven research and applied research is no longer relevant, where does responsiveness tie in? (Peter Maassen, University of Oslo)

The South African system has since 1994 advocated a circular model. The point now is to perfect the model. (Adam Habib, Wits)

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5 Bologna Process Beyond 2020: Fundamental values of the EHEA. See http://bolognaprocess2019.it
Concluding remarks

Chris Brink: While there will be shifts over time, it is unlikely that the responsive argument will go away. It is not about pure or applied research — that is the wrong distinction. A personal preference would be to use the term ‘challenge-led’ research. And indeed, responsiveness also needs to be reflected in the curriculum. Universities need to develop, and make open to the public (on websites, for example), a portfolio of case studies that illustrate impact. This is, in fact, an easier argument to make than that of excellence.

Peter Maassen: ‘Business as usual’ is no longer acceptable to society. Universities have to rethink how best to stimulate and incentivise their third mission activities, and the strategic and structural support systems appropriate to achieving what is needed.

3.2 South Africa’s post-school system of education and training

Four plenary sessions are grouped under the broad theme of universities in South Africa’s post-school system of education and training. Again, the presentations are not grouped sequentially, as reflected on the conference programme, but linked to building a combined narrative of inputs and discussions.

The presenters and sub-themes included here are:

- Professor Narend Baijnath, Chief Executive Officer, Council on Higher Education (CHE). New priorities for the Council on Higher Education for the Medium-Term Strategic Framework.
- Professor Bennie Anderson, Chief Executive Officer, The Da Vinci Institute; Dr Linda Meyer, Dean: Institutional Advancement, Boston City Campus and Business College; and Prof Alwyn Louw, President: Independent Institute of Education Monash SA (IIE MSA). Designing a higher education system for the future: optimising the role of private higher education to enhance open access.
- Dr Joanna Newman, Chief Executive and Secretary General: The Association of Commonwealth Universities (ACU); Prof Stephanie Burton, Vice-Principal: Research and Postgraduate Education, University of Pretoria (UP); Dr Aldo Stroebel, Executive Director Strategic Partnerships, National Research Foundation (NRF); Ms Mandisa Cakwe, Director of Teaching and Learning Development in Universities (DHET); and Dr Sizwe Mabizela, Vice-Chancellor and Principal, Rhodes University (RU). Generating talent: transforming support for the research landscape in South Africa.

A cross-cutting theme that ties these plenaries together echoes the Minister’s opening address on the role of universities as a national asset, and the priorities that are and need to be addressed over the short- to medium-term.

A National Plan for Post-School Education and Training

‘By 2030 we aim to have developed a more socially just, responsive, and well-coordinated PSET system, providing access to a diversity of quality education and training opportunities, where students have a reasonable opportunity for achieving success, and with vastly improved links between education and the world of work.’

Dr Diane Parker (DHET) presented the broad highlights of the soon to be published National Plan for Post-School Education and Training against the backdrop of a brief history of its development, and the re-alignment that is needed within the post-school education and training system to address youth unemployment and to achieve socio-economic growth.
The purpose of the National Plan is to serve as a roadmap for reinvigorating the post-school education and training (PSET) system over the next decade, from 2020–2030. Work started in 2015 with the appointment of three ministerial task teams to develop the plan so as to give effect to the White Paper (2013), *Building an expanded, effective and integrated post-school education and training system*. Delays in finalising the plan stemmed from changes in political leadership, the subsequent refinement with input from new ministers, and related structural changes.

The importance of getting this plan right is underscored by the contextual challenges which Dr Parker outlined:

Of the 100 children who enter the schooling system, 37 pass the final year of schooling, 12 access university and only four complete a degree within six years. This means that only 13% or 2.6 million are in universities, technical and vocational education and training (TVET) and community colleges, or in some form of workplace-based learning. A staggering 5.7 million are unemployed with an additional 2.5 million not economically active.7

‘That simply means that unless employment is created and young people become productive in our economy, we as a country are doomed to face a time bomb.’ Dr Parker argued that the constituent parts of the PSET pyramid needed to change, which means a radical shift towards a much greater uptake in TVET and community colleges by 2030.

The plan has six goals and associated objectives and outcomes that set out the implementation of the White Paper 2013.

Three ideas emerge as key drivers for the system: First, the massification of the college sub-systems (1 million to be enrolled in the community colleges by 2030 and 2.5 million in public and private TVET colleges by the same year, compared to 1.6 million enrolled in universities); secondly, the purposeful diversification and differentiation of higher education institutions (HEIs), including the establishment of university colleges; and thirdly, the interlinking of three systems and the improved interface between colleges, universities and the world of work.

Dr Parker ended her presentation with an illustration and a familiar quote: ‘Compared to a single bird flying alone, a flock of birds flying in a V-formation derives a 71% increase in flying efficiency. That’s what we need — coordination, cooperation and partnerships to achieve a national system.

With limited space for discussion, Prof Ahmed Bawa (USAf) asked:

*Are we not retro-fitting the system into what we already have? We could be missing an important opportunity to think about higher education in radically new ways, such as two- and four-year colleges and regional models that may work. Can we not think of differentiation through design?*

A further point: with the DHET-DSI merger, there is the need to rethink research in ways that does not leave this core mandate of universities in two entities.

Dr Parker’s brief response was that the DSI is a separate institution, and that there need not be complete alignment between what the DSI and the DHET do.

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As a final comment, she asked participants to imagine a landscape occupied simultaneously by a university, a TVET college and a community college, all working together to generate from artisanal and technical basic skills through to engineering and high-level research skills — all in response to the pressing challenges facing their common community while generating good for the entire society and beyond.

New priorities for the CHE

‘We are paying particular attention to how we liberate the regulatory space and make it possible for institutions to be more responsive.’

Professor Narend Baijnath (CHE) presented in overview the mandates of the Council; its relationship with universities, the DHET, and the Parliamentary Portfolio Committee on Higher Education, Science and Technology (PCHEST); and what he called ‘the big systemic issues’ of quality and quality improvement.

Established as an independent statutory body in May 1998 in terms of the Higher Education Act of 1997, the CHE is South Africa’s quality council for higher education, with its mandates relating to both higher education and training, and the South African Qualifications Authority (SAQA).

He noted in his introduction that it was an opportune time to align the CHE plan with the DHET’s 10-year national plan for the post-school education and training system. Also, the Council has received an infusion of funding from the DHET which has made it possible to focus on key priorities for the CHE and its Higher Education Quality Committee (HEQC) over the medium term. He added that as new imperatives for action were added, it was important that the department, the sector and the quality councils do not work at cross-purposes. So, in a spirit of cooperation, the CHE was having discussions with both USAf and the department about spacing out the CHE’s priorities over the next five years.

The immediate priorities are to revitalise and re-capacitate the CHE and, in particular, to re-introduce audits and simplify accreditation.
The accreditation backlog was a particular concern, and generated most of the discussion that followed Prof Baijnath's presentation. There has been a four-fold increase in accreditation: the HEQC is now managing over 11 000 qualifications with the same capacity as when it was managing about 3 000 qualifications.

Baijnath noted that the CHE was very conscious of how the regulatory regime could be a stumbling block, especially now, when opportunities are opening up for public institutions with respect to online education and cross-border delivery. The CHE's proposition is that where institutions are able to demonstrate that they have a good, responsive quality assurance system in place, they would not be required to submit each and every programme for accreditation by the CHE. And that, he said, is a status that each institution should aspire to achieve.

**Points of discussion**

South Africa deserves a much more transparent quality and excellence determination process. This includes not only the potential for curriculum review but research rating as well. When transparency is achieved, we will also feel more comfortable about the extent to which the decolonisation project is being taken seriously. (Pearl Sithole, UFS)

There is potential for over-regulation, which includes the CHE, DHET and other national ministries and accountability bodies. The consequence is that the focus of universities is increasingly on developing capacity for reporting, as opposed to developing the capacity for ensuring the quality of universities' academic core business. (Heather Nel, NMU)

Should we not be decentralising the accreditation process, up to a certain level, to the institutions themselves? If the CHE has 11 000 courses and programmes to accredit, it would still be battling even with additional staff. We are basically log-jamming the system; frankly SA's university system is constipated, unless we start reorganising its operational models. (Adam Habib, Wits)

**Concluding remarks**

Narend Baijnath: The points were well-taken. The CHE has been exploring options to free up capacity and to increase efficiencies. But the system needs regulation. One of the most critical imperatives for regulation was to protect citizens and to ensure that programmes were credible, that students ended up with qualifications that could gain them employability, and that qualifications were standardised. To illustrate, the CHE has been questioned as to why a PhD could not be done in one year. Without the CHE or SAQA, there would be no authority to say what the minimum standards, criteria and capacities are for such a degree.

In response to Prof Habib's input: the CHE has done precisely what is suggested and has set up internal quality assurance with institutions. This would also liberate the CHE to focus on institutions that do not yet have that capacity, and to help them develop the systems needed for internal quality assurance.
Designing a higher education system for the future: Optimising the role of private higher education to enhance open access

‘There are several models globally for achieving optimal synergies between public and private initiatives in the interest of higher education development.’

The three panellists from the private higher education sector focused, respectively, on context; opportunities; and the role, value and future of private higher education:

Professor Bennie Anderson (Da Vinci Institute) said in his opening remarks that as issues of quality, performance and accountability touch every country and higher education institution, it is encouraging that these matters are debated at a systems level. Accountability is critical and new concerns are informed by education’s increased role in the development of national and global architectures. However, the failure to measure important outcomes in ‘a generalisable and consensually accepted way will limit the kind of insights that have played such an important reforming role in other sectors’.

The authority of the academic institution is already being challenged by multi-stakeholder involvement and new technologies that will arguably democratise access to information and the quality assurance debate itself, he said. In reference to a study on the future role of universities, Prof Anderson noted that universities will need to streamline their operations and asset base, at the same time as incorporating new teaching and learning delivery mechanisms, and stakeholder expectations for increased impact.

Over-regulation could be a potential brake on the speed of change required, he said.

Prof Anderson made further reference to South Africa’s National Development Plan, and President Ramaphosa’s statement, in February 2019, that South Africa is committed to radically overhaul the education system. In conclusion, he presented the megatrends that will have an impact on higher education. Taken together, what do these trends, leadership commitment, and national plan mean for private higher education in South Africa?

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Ernst & Young, 2014. University of the future: a thousand year old industry on the cusp of profound change (Australia: Ernst & Young, November 2014).
Dr Linda Meyer (Boston City Campus and Business College) presented the opportunities for private higher education. At present, private higher education institutions (PHEIs) account for 31.3% of global student enrolments, compared to 16% in South Africa. Traditionally private HEIs represented religious, elite and ‘demand-absorbing programmes’, she said, but this is changing. The focus has now shifted to access, and ‘translating and communicating knowledge to a wider audience’. PHEIs offer a vehicle to assist with the growing demands on HE provision, and the dramatic increase in the demand for and participation in tertiary education in South Africa.

From the raft of ideas Dr Meyer presented on opportunities in an expanded higher education system, the following stands out as closely related to the brand and value of private higher education: ‘Stakeholder collaboration and marketplace value in the production of knowledge and knowledge currency, that enhances innovation toward increased access, affordability and equity’.

In the final presentation, Professor Alwyn Louw (IIE MSA) framed his input in reference to trends that have had an impact on the growth of private (self-funding) higher education across the world. This includes diversification in order to accommodate the growing need for participation and to reduce pressure on the state. While the demand is increasing, state funding is decreasing.

Globally there has also been a shift from state planning to markets and, in a knowledge economy, the need for lifelong learning. Private higher education is known for its ability to accommodate rapidly changing needs for new programmes, products and skills. The key drivers remain demographic growth, growing demand, stagnant supply, economic expansion, a growing middle class, rising social aspirations, expanding labour markets, and innovative development of private higher education opportunities.

There is no need for higher education and training to be the domain of the state and public institutions only, he said. It should be acknowledged that private higher education is potentially a key component of South Africa’s higher education system. The focus needs to be on growing resources, facilities and service availability to optimise quality access to flexible and open higher education services in an efficient manner.

There was limited time for discussion, with two points raised:

From a cost perspective, private higher education is more expensive. Is it possible then to talk of access, affordability and equity of outcomes? [Suellen Shay, UCT]

There are non-profit and for-profit private institutions; it seems important to draw this distinction. [Peter Maassen, University of Oslo]

In response to the importance of drawing a distinction between non-profit and for-profit private institutions, Prof Louw noted that both fall under the same market regulation.
Generating talent: transforming support for the research landscape in South Africa

‘We cannot in one go address all the challenges that have been listed in this report. We must be focused.’

This plenary was in effect a feedback session, updating conference participants on the outcomes of the Universities South Africa–Association of Commonwealth Universities (USAf–ACU) symposium held in March 2019 at the University of Johannesburg. The focus of the symposium was on the key outcomes of a study commissioned by the DSI and undertaken by the Centre for Research on Evaluation, Science and Technology (CREST). Participants at a USAf–ACU event engaged the findings on early career research development, and produced their own set of recommendations grouped under nine themes. The report on the symposium, and the recommendations generated, became the focus of discussion at the USAf conference.

Dr Joanne Newman (ACU) introduced the discussion and invited four panellists to provide feedback on the symposium recommendations, and a critical assessment of key aspects of the USAf-ACU report. She concluded that through USAf, the ACU would explore how best to implement the recommendations and a methodology towards a collaborative approach across the sector.

Professor Stephanie Burton (UP) was the first speaker. Her view was that the problem is not in finding suitable numbers of applicants for postdoctoral fellowships, but rather in finding appropriate mentors. This is not simply a process of assigning fellows to mentors, but rather akin to a ‘matchmaking process’. In different terms, matching suitable mentors to postdoctoral fellows is the bigger challenge. With respect to the proposal for a postdoctoral review, she said that a key issue was that there was not a uniform university system. This means that commonalities will need to be identified, and the role of postdoctoral fellows defined.

Prof Burton was in full support of the idea of international experience for doctoral students and said that split-site PhDs was an excellent way to provide this exposure, but it would depend on having ‘the kind of consortium-based doctoral training’ that is, in fact, very rare in South Africa. Standardisation and international recognition of qualifications was also a big stumbling block which needed to be ironed out before dual degrees can be considered.

One of the recommendations is that the ACU and USAf partner to build supervisory capacity. This needed clear definitions, standards and benchmarks, she said. ‘If we are going to have a national programme that trains supervisors, we will have to look at how we manage that.’ While it will be useful to link with other commonwealth countries, it would be far more beneficial to have visiting professors and supervisors come to South Africa.

Prof Burton proposed doctoral training centres with PhD students, supervisors and postdoctoral fellows, so that ‘not only are we supervising our PhDs on a consortium basis, but we are also building a community of scholars’. She envisaged a seamless continuum from PhD training to postdoctoral fellowship and supervision and mentorship. While this could be piloted, she advised to begin with a small focus area or areas.

The next input was by Dr Aldo Stroebel (NRF). He highlighted that there was often an over-expectation of what a small funder in a big system can and should do — an oversubscribed NRF and a shrinking research support budget make partnerships all the more important; to illustrate, the NRF funds 13% of all PhD students in South Africa. One of the more fundamental changes in South Africa’s system was the new postgraduate funding framework which has increased the quality but unfortunately decreased the quantity.

Focusing on the recommendations, he said a mandatory period abroad for PhD candidates must be non-negotiable — it boosts quality, lifelong learning, mentorship and networks. The NRF’s global knowledge partnership programme would be a very important part of that.

There was a sense of urgency highlighted in the report’s critique ‘that not one single university can show a comprehensive integrated programme with respect to PhD and postdoctoral engagement, research and education’. This adds credence to ‘doing things together and focussing’, and highlighted USAf’s increasingly important and influential role. He also noted that although people were quick to point to external partnerships, local and regional collaborative resources have to be leveraged too.

In his concluding comment, Dr Stroebel highlighted that high-level coordination is needed among a range of government departments beyond the DHET. There was also a need to focus on attainable levers. ‘We cannot in one go address all the challenges that have been listed in this report. We must be focused.’

Ms Mandisa Cakwe (DHET) provided the third input. She spoke of how the report’s recommendations intersected particularly with the DHET’s Staffing South Africa’s Universities Framework (SSAUF) and its three programmes aimed at accelerating the development of early career academics:

- The Nurturing Emerging Scholars Programme (NESP), which offers a postgraduate scholarship and university internship to top-achieving students, and in so doing, builds their academic careers.
- The New Generation of Academics Programme (nGAP), which appoints permanent academics and then supports them to pursue their PhDs; to date 369 lecturers have been appointed since the start of the programme in 2015/2016.
- The Academics Capacity Enhancement Programme (ACEP), which supports academics in the system in a two-pronged approach: by supporting them to achieve a PhD (which includes a partnership with US universities and soon with UK universities); or by supporting the development of senior lecturers to be able to apply for professorship posts.

Dr Sizwe Mabizela (RU) was tasked to comment on collaborative aspects of the report. An important starting point, he said, is the recognition that our universities form part of a single coherent higher education system with different but compatible goals. ‘No single institution can possibly provide every support programme that is required to advance the objectives of academics and researchers. An approach that encourages the pooling of resources, collaboration, partnerships and cooperation will better serve the sector than one that encourages destructive competition.’
3.3 The idea and impact of the fourth industrial revolution

On the final day of the conference, two plenaries addressed the idea of the fourth industrial revolution (4IR) and the likely impact on the future of universities:

- Professor Paul Tiyambe Zeleza, Vice-Chancellor: United States International University (USIU)–Africa, Nairobi, Kenya
- Professor Tshilidzi Marwala, Vice-Chancellor: University of Johannesburg (UJ); and Professor Derrick Swartz, former Vice-Chancellor and Principal: Nelson Mandela University (NMU), and advisor to the Minister of Higher Education, Science and Technology.

**The challenges and opportunities of the fourth industrial revolution for African universities**

‘(The) trends in higher education … are of course firmly latched to wider transformations in the global political economy, in all its bewildering complexities and contradictions, and tethered to particular national and local contexts.’

Professor Paul Zeleza presented a carefully scripted paper in which he underlined the complex and divergent perspectives on the connections between the 4IR and higher education. This he situated in, firstly, the context of wider geo-political changes; secondly, the changing nature of work; and thirdly, key trends in higher education.

He noted that situating the 4IR in these contexts underscores a simple point: ‘that it is part of a complex mosaic of profound transformations taking place in the contemporary world that precede and supersede it’. He also noted, in his opening remarks, that as a historian and social scientist, he was too aware that technology is always historically and socially embedded: ‘In short, technological changes, however momentous, produce and reproduce both old and new opportunity structures and trajectories that are simultaneously uneven and unequal because they are conditioned by the enduring social inscriptions of class, gender, race, nationality, ethnicity and other markers, as well as the stubborn geographies and hierarchies of the international division of labour.’

Here are some of the questions Prof Zeleza posed:

- Given changes in the global political economy, how should Africa position itself, and how best to pluralise global engagements without succumbing to the hegemonic ambitions of the new geo-political powers?
- Can Africa leverage the current shift to achieve its long cherished but deferred dream of sustainable development?
- What are the developmental implications of Africa’s demographic bulge, and Africa’s global position as it becomes the reservoir of the world’s largest labour force? Can demographic growth be turned into a dividend and opportunity for development?
- What is and will be the nature of Africa’s levels of participation in the 4IR — as a player or pawn, as in the previous three revolutions?
With respect to the 4IR and higher education, his focus was on four interconnected trends: digital disruptions that affect every aspect of universities; the rising demands for public service and engagement; the unbundling of the degree; and the escalating imperatives for lifelong learning.

Prof Zeleza noted that, in the end, ‘the fate of technological change is not pre-determined, it is always imbricated with human choices and agency’.

Points of discussion

Should the focus (in discussions of rapid technological change) not be much more on the ends, not the means? Central ought to be the focus on ‘graduateness’ — what it means to be a graduate, and how universities serve society and therefore our purpose. The technologies we are talking about are really just assisting that purpose. Further, the notion of a community of learners is fundamental to the way in which humanity is developed. [Yunus Ballim, SPU]

I do want to confess that I am still sitting on the fence. In reference to Julia Gillard (first woman prime minister of Australia who now chairs the Global Partnership for Education), globalisation cannibalises the local but still retains specific interests. In the glorification of the fourth industrial revolution, and in the manner in which we imbibe this change, we are missing the other trends. [Pearl Sithole, UFS]

Concluding remarks

In his closing remarks, Professor Zeleza said that he agreed with both observations. Change is a process of continuous overlaps — the old does not disappear. These (technological changes) are all means, not ends, and we need to ask ourselves what is the end. Linked to the idea of graduateness, why do students come to campus if they can access content on their smart phones? The issue of globalisation and ‘the ways we consume knowledges and trends and fashions and fads from elsewhere’ is something that we continually have to guard against.

Therefore the importance of the question, Are we players or pawns in the evolution of global forces? In technology, for example, are we simply consumers or are we also creators? This is something that we as universities must grapple with in order to position what we as universities invest in, in order to become part of the global technological pool.

The impact of the new, integrated technologies on higher education’s future

‘The World Economic Forum estimates that by 2020 there will be 1.5 million new digitised jobs across the globe for which 70% of educators and students feel ill-prepared.’

Professor Tshilidzi Marwala went straight into the technologies that drive the 4IR, and then moved to illustrate, through examples of disciplinary fields and professions, what the 4IR would mean for universities and future knowledge workers — in economics, the banking industry, political science and international relations, psychology and the health sciences.

11 In Section 3.1, on the role of universities, this is referred to as the ‘third mission’ of universities, or as responsiveness to societal challenges (see pages 7-10).
He listed three examples of current technologies that either build on previous innovation or are new: cyber — artificial intelligence (AI), blockchain, quantum and the internet-of-things, and the internet-of-educational-things; physical — 3-D printing, robotics, autonomous vehicles, new materials; and biological — biomedical engineering, biotechnology.

With respect to the change in disciplines, one of his recent books\textsuperscript{12} provides theoretical and practical updates on major economic ideas, such as demand and supply, rational choice and expectations, bounded rationality, behavioural economics, causality and financial engineering, and more — illustrating the impact of artificial intelligence as a computational technique. These ideas are applied to diverse areas such as modelling the stock market, credit scoring, HIV and interstate conflict. In another publication, militarised conflict is modelled using computational intelligence;\textsuperscript{13} this list goes on.

What do technological developments in the 4IR mean for the workplace and for universities? The changing world of work needs techno-scientists, techno-health workers, techno-social scientists, Marwala noted. This, of course, means that universities need to prepare graduates for a rapidly changing world of work. What should a curriculum for the banking sector look like, for example? He gave the example of Michael Jordaan, former CEO of First National Bank, who has said that future bankers may need to be software engineers more than economists. A further example was of factory production that was no longer about mass automation but ‘intelligent automation’ with people intervening or supervising machines.

Students need a multi-disciplinary education experience because this was key to exploring integrated technology. He concluded with brief comment on the impact of the 4IR on the core missions of universities.

‘SA has policy domain over how it wants to shape particular technological pathways into the future.’

Professor Derrick Swartz approached his input from a different perspective — the grand challenges that confront humanity. In framing his input, Prof Swartz noted that if Marwala was an optimist of the future, then he was something between a sceptic and a realist, maybe a critical realist.

While there have been spectacular and unprecedented advances in the techno-sciences over the past decades which include but have gone beyond the 4IR, we know from history that it will require democratic interests to assert ‘public good’ norms and goals. He argued that social and ecological justice need to be at the core of the policy choices South Africa makes over technological development pathways.

Such choices need to contribute to:

\begin{itemize}
  \item Eradicating the spectre of poverty, inequality and unemployment
  \item Creating future human societies in a world with diminishing natural resources
  \item Arresting ecological and climate destabilisation
  \item Ensuring sustainable human consumption and production
  \item Securing planetary habitability for future generations, and
  \item Constructing an alternative economic and social order to bring human life in harmony with the earth’s metabolic and ecological systems.
\end{itemize}

\textsuperscript{12} Tshilidzi Marwala and Evan Hurwitz, 2017. Artificial intelligence and economic theory: Skynet in the market (Springer)

\textsuperscript{13} Marwala et al., 2011 (Springer).
We know that 4IR technological advances are driving the boundary convergence of biological-digital-physical worlds in a multiplicity of ways, he said. But there are many things we do not yet know. We also know that technological developments tend to outpace cultural and social evolution which pose all sorts of issues. What he was advocating, he said, is ‘a research and development agenda that places the human at the heart of the technological innovation debates and choices.’

Prof Swartz concluded with the following recommendations:

• That universities build alliances with social forces committed to embracing the twin challenges of social justice and ecological sustainability; and

• That universities help to construct innovation bridges and R&D platforms which actively explore sustainable alternatives to the existing orthodoxies in economic development.

His proposed two actions for USAf to take forward:

• The World of Work strategy group to model progressive alternatives; and

• USAf to explore prospects of establishing a publicly-owned national digital system to expand the size and reach of the higher education system.

Points of discussion

Picking up on the comment that ‘we don’t know what we do not know’, an interesting example is science fiction writers who were invited to a recent conference to present what they anticipate for the future. The conference, themed Humanities and Higher Education: Generating Synergies between Science, Technology and Humanities,14 was hosted by the Global University Network for Innovation (GUNi). This strategic act on the part of the conference organisers points to the challenge we face in developing an integrated curriculum where science, engineering, humanities and social sciences come together. [Ahmed Bawa, USAf]

I have heard people say, ‘Your graduates are useless — they don’t know which button to press on the machine’; my response: ‘Well, I hope my graduates never come to work for you.’ This view tells me that people often do not understand what universities do. Our students will most probably have jobs in ten years that don’t have a name yet. But we must not forget the foundational questions about the purpose of higher education — it is not simply to serve the short-term needs of the economy. The conversation we should be having among ourselves is the need to rethink curriculum and pedagogy. For example, one of the challenges is that our humanities graduates leave without a full understanding of technological issues. [Yunus Ballim, SPU]

Where do we go from here? While agreeing entirely with the complex challenges presented, the challenge is how to marshal the collective leadership to bring together a coherent agenda for the sector. We do not have this, despite all the summits, because we have not put resources into it. [Adam Habib, Wits]

14 http://www.guninetwork.org/activity/international-conference-humanities-and-higher-education
Concluding remarks

Tshilidzi Marwala: In response to Prof Ballim, the primary responsibility of universities is to provide good education, which basically means that if you come and do a technical degree and know very little about society, it is not a good education. Graduates who have a spread from humanities to technologies will find a space in the new dispensation.

Derrick Swartz: In response to Prof Habib, this is no different from how the leadership of universities has always taken up big challenges — by taking up conversations with the structures of power. And in reference to an earlier input by Prof Bawa about the purpose of the knowledge project of universities, if discussions were reduced to technology per se, we would be missing the point. Universities needed to be activist, progressive and assert the public interest on the agenda and, as we have done before, manage strategic dilemmas.

3.4 South Africa’s adventures into open access

The plenary discussion on open access, an important element of an open science framework, was presented by:

- Prof Ahmed Bawa, Chief Executive Officer: Universities South Africa (USAf)
- Dr Molapo Qhobela, Chief Executive Officer: National Research Foundation (NRF).

‘The existing business model of the journal publishing houses makes access to publications and research data increasingly unaffordable to the NSI and undermines the principles of human rights and social justice.’

The focus of the discussion was on the draft declaration on open access, jointly developed by a task team made up of members of USAf, the NRF, the Academy of Science of South Africa (ASSAf), the DHET and DSI, the Committee of Higher Education Libraries of South Africa (CHELSA), and the South African National Library and Information Consortium (SANLiC). In brief, there are four succinct sections to the declaration: a preamble, followed by further elaboration on South Africa’s position and context; what universities and science councils resolve to do; and finally, what the open access project will do. Contextualised within South Africa’s National System of Innovation (NSI), the declaration is in alignment with the global movement towards open science systems and open access, the latter specifically related to access to publications for which journal subscriptions are required, and that fall under the umbrella of major international publishing houses.

Two models have been advocated internationally: Plan S and the OA2020. Plan S, supported by an international consortium of research funders, requires that ‘scientific publications that result from research funded by public grants must be published in compliant Open Access journals or platforms’. OA2020 is a global alliance whose mission is ‘to replace the subscription business model with new models that ensure outputs are open and re-usable and that the costs behind their dissemination are transparent and economically sustainable’.15

Points of discussion

Discussions on open access started as far back as 2008; the draft declaration is welcomed but progress has been slow. A caveat to the open access model is that researchers should have the right to publish wherever they choose, provided that their publications become ‘open access’ within a set period of time. I have four recommendations: a) that the DHET and DSI develop legislation that regulates open access of publications within a specified period; b) as public education is a ‘rights access’ issue, that the Department of Trade and Industry (dti) interact with the World Trade Organization on behalf of the science system — this will be a game-changer; c) that a national policy decision is needed to prevent the big journal publishing houses from playing off one institution against the other; and d) that local journal publishers need to be protected through state subsidies. [Adam Habib, Wits]

Could the ‘pay to publish’ model be a perverse incentive to increase the acceptance rates of journal articles? This will clearly have an overall negative impact on quality. [Tyrone Pretorius, UWC]

Concluding remarks

Ahmed Bawa: Our approach is for publishers to change their business model so that researchers can publish in the journals of their choice. Although it is often said that South Africa punches above its weight with respect to research output, on a global scale we are a very small player and we therefore have to ensure that we intersect with regional and global science systems. The idea of legislation is already there — South Africa has good Intellectual Property (IP) legislation but we have not fully operationalised that. And indeed, we have to be careful not to undermine local journal publishing houses. Further, in response to Prof Pretorius: journals are unlikely to jeopardise quality; the idea of the OA2020 model is that there is no extra money — the money we pay for subscriptions is the money we have. The OA2020 model depends on a three-year transformative agreement, after which the ‘pay to publish’ cost is to be renegotiated.

Molapo Qhobela: Plan S pursues a simple model where public-funded research granting organisations (such as the NRF) must make research outputs and data open; the QA2020 model pursues a different business model. The consequence of both, in addition to the issue of subscription costs that have become unaffordable, is to democratise knowledge. This is our first foray into an open discussion to reflect on whether we ought to be going down this road, what the challenges are, and how we can work together. It’s about putting the entire science and higher education system together to reflect on the way forward.
The 15 parallel sessions of the conference were built around USAf’s five strategy groups: transformation, teaching and learning, research and innovation, funding, and the world of work.

The purpose here is not to provide a summary of each presentation, which cannot do justice to the intellectual efforts and detail that went into each. Instead, we attempt to present the broad thematic highlights and points of discussion that constituted the narratives, and provide links where presentations are available. As was to be anticipated, there were several areas of overlap between the focus areas of strategy groups.

4.1 Transformation

Central to the transformation of universities is their simultaneous situatedness in place (local, national, regional contexts), and in time (a 21st century global world). This ‘matrix’ or dimensionality predictably means that the theme of transformation permeated many of the discussions at the USAf conference, often presented in its full complexity, while pointing to the role of universities in society.

Grouped here are three thematic presentations:

- The production of institutional culture in South African universities and the limits of transformation
- Transformation by design — staff and student centrism as ‘architectural’ principles of social justice change in universities
- Remaking the university — transformative engagement as embedded practice in local contexts.
A fourth theme is brought in here as reference and counterpoint, precisely because of the all-encompassing reach of transformation in the context of universities in South Africa: *Reimagining the exponential and entrepreneurial university of the 21st century.*

At one end of the spectrum, Professor Crain Soudien (HSRC) commented: ‘Theoretically universities, as places of ideas, of all the great institutions in society, ought to be able to reconstitute themselves most easily. And yet they are often places of entrenched orthodoxy.’ At the opposite end, Professor Zeblon Vilakazi (Wits) introduced a completely different view on change. He started the session he chaired with a video clip of the Nasa lift-off of the first moon landing 50 years ago, commenting that it was an ‘intellectual, physical, technical and engineering leap of faith.’ Yet the computer that guided the men on the moon was ‘a millionth of the power of the computer you have in your pocket,’ he said. ‘Can someone stop this train?’ And ‘what do these “great accelerations” mean for universities?’

Both positions illustrate transformation and change, revolutionary and over time. In the middle is the glue that keeps our institutions together — students, staff, funding and resources — which, of course, includes the institutions themselves.

In the themed extracts that follow, we present a mosaic of views and dimensions to transformation, each framing or pointing to choices that ought to be made about institutional strategies and action in the ongoing transformation of universities. Each of the three sub-sections is followed by a summary of the main points of discussion and, indeed, contestation.

**The production of institutional culture**

- Prof Yunus Ballim, Vice-Chancellor and Principal (SPU) and Prof Pearl Sithole, Vice-Principal: Academic and Research, Qwaqwa Campus (UFS)—Co-Chairs
- Prof André Keet, DST-NRF Chair of Critical Studies in Higher Education Transformation (NMU), and Chair of the DHET Transformation Oversight Committee
- Prof Pamela Dube, Deputy Vice-Chancellor: Student Development and Supports, and Ms Khuselwa Kafu, postgraduate student (UWC)
- Mr George Mvalo, Director: Social Justice and Transformation (VUT), and Chair of USAF’s Transformation Managers’ Forum.

‘The best way to stop a conversation about institutional culture is to attempt to get a shared definition of it.’
Andre Keet (Nelson Mandela University):

A discursive critique makes possible targeting a range of occluded, granular economies that are constituted as micro arrangements within a university space, and have become an acceptable and immovable way of doing things. Across institutions there are patterns of such micro economies of recognitions and misrecognitions, or inclusions and exclusions that exist.

While discursive analysis is not a totalising frame of reference for critique, it does allow for an interrogation of the taken-for-granted assumptions that exist across universities. For example, such assumptions allow for the propagation of ideas like the dysfunction of the historically disadvantaged institutions (HDIs) which is never couched in racist terms but in terms of maladministration. It also allows for transformation to be deferred within a series of contested ideas like equity or excellence, or transformation and quality. Ironically, many of these have been transcribed into departmental policy.

Another micro economy, that of management, allows some individuals to ‘play the system’ using a code that allows them to get things done while disallowing others to do the same. That is further reflected in the sets of power relations that are wielded at an administrative level around what is allowed or not, but is never tested against fairness, only against the policy.

Khuelwa Kafu and Pamela Dube (UWC):

There is a discrepancy between institutional policy measures and the vastly different lived realities of students. As rapidly as society is changing, top-down governance has remained essentially as it was decades ago. There is a need for institutional engagement beyond the council, senate and statutory structures of the university. For example, by involving students in the planning of communication campaigns aimed at students, the university could realise far bigger successes than it has ever done before, as students know better what language, platforms and approaches work best for their peers.

George Mvalo (VUT):

While some institutions have made great strides in transforming across race and gender their staff and student complement, some institutions, 25 years later, manifestly lack the political will to become an inclusive space. There is a dominant sense of comfort with the status quo across the sector. This sense of comfort needs constantly to be challenged if we are to realise the transformation objectives laid out in the 1997 White Paper 3, A Programme for the Transformation of Higher Education.
**Points of discussion**

When we construct the debate at a conceptual level, we cannot grapple with the reality of what is working and what not. Are you really saying that we have not transformed over the past 20 years? The evidence gives a different picture. We need to move the debate from the challenges to what we should be doing. Also, can what’s working at one institution be exported to another? No one spoke of a failed project but rather of areas that are difficult to grasp and need research, for example research into each of those micro economies that pervade the system. [Adam Habib, Wits]

Accepting that transformation was a process, why does it take so long? Is our intransigence structural or human? [Fundisile Nzimande, DHET Transformation Oversight Committee]

What could be done to further interrogate the metatag of dysfunction that has become associated with HDIs? An additional area in need of interrogation is the lack of institutional solidarity, and how it is that some academics do not feel part of the institution. [Sibongile Muthwa, NMU]

There is no point in speaking of the future without confronting the difficult questions of racism and class that pervade our universities; until these uncomfortable things have been named, we cannot move forward. [Xoliswa Mtose, UniZulu]

Analyses that identify micro economies are important, as it is exactly at these junctures where old power relations are consolidated and the institutional culture gets stuck. There are research tools to examine and expose these economies and how they play out on a daily basis. However, too often there are no financial resources allocated to undertake that kind of deep, analytical and transformational work. [Clair Kelly, SU]
It was Prof Keet’s notion of micro economies that perhaps most engaged the participants. Quantitative indicators were clearly not sufficient in monitoring transformation. After 25 years of gathering institutional data, there was a pervasive sense that it would take additional methods of enquiry to uncover the university/office politics at play. The question becomes how such a project(s) should be funded.

**Transformation by design — staff and student centrism**

- Dr Sibusiso Chalufu, Executive Director of Student Life (NWU)—Chair
- Ms Sebenzile Matsebula, DHET Transformation Oversight Committee
- Ms Fundisile Nzimande, DHET Transformation Oversight Committee
- Mr Jerome September, Dean: Student Affairs (Wits)
- Mr Thabo Shingange, National Spokesperson of the South African Union of Students (SAUS)
- Prof Puleng LenkaBula, Vice-Rector: Institutional Change, Student Affairs and Community Engagement (UFS).

‘*The irresponsibility of the privileged is often to assume that who they consider to be normal and elite is the way to mobilise higher education systems.*’

**THEMED EXTRACTS | 2**

**Sebenzile Matsebula (DHET Transformation Oversight Committee):**

The problem is not legislation about disability. We have exceptionally good disability policies and innovations as a country. The serious challenge is with implementation. Unless we commit to following principles of universal design, we shall not attain the transformation by design that we seek as a country.

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**Fundisile Nzimande (DHET Transformation Oversight Committee):**

It is in the core activities of the university that the ultimate results of gender mainstreaming shall be achieved. It is imperative to ensure that a gender perspective is incorporated in the planning, resourcing, implementation and monitoring of all the core activities of the university. Gender mainstreaming must not be reduced to an administrative exercise. In South Africa it seems that the position and conditions of women are becoming worse.

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**Jerome September (Wits):**

Universities must be designed around student success. Student access and success do not happen by chance.

It is widely accepted that higher education has a broader social purpose which goes beyond producing graduates for the marketplace. Enhanced access and success for disadvantaged and excluded communities equalise the life chances of talented individuals, irrespective of social origin or financial capacity. In this way higher education becomes a powerful lever for constructing a more just society.
Thabo Shingange (SAUS):

Universities in general, and historically white universities in particular, maintain deeply rooted colonial and racist institutional cultures which continue to exclude and alienate non-white students. We tend to neglect the second part of ‘free education’ that speaks to the heart of the university: the kind of knowledge it produces and the values it upholds. Race, class and gender inequality prevalent in the broader society characterise the higher education system.

There are four key aspects to the neo-colonial corporate university: the dominance of coloniality; the obsession with international benchmarking; the corporatisation of academia; and authoritarian and despotic management resulting even in staff being afraid to challenge and speak up.

Puleng Lenka-Bula (UFS):

The notion of centrism must not be at the centre of thinking about transformation if we are going to be constructive and progressive. It is not in itself a transformational value.

If we want to design transformational systems we must take into account the writings of political scientist, Joan Tronto who has said the irresponsibility of the privileged is often to assume that who they consider to be normal and elite is the way to mobilise higher education systems. The privileged could be those who are able-bodied, or those who are heterosexual, imposing thinking that may not be inclusive. It is also about privileging western over African knowledge systems.
**Points of discussion**

There was a lot of talk about what we need to do, yet very little about what we are doing, and the failures and successes. We speak always as if we were at the start of something; we do not speak as if we are in the process of implementing transformation plans, of changing the higher education sector to address our needs as a country. [Noluxolo Nhlapo, RU]

Have we sufficiently problematised the present to move to the future? [Xoliswa Mtose, UniZulu]

The panel discussion brings hope: to some extent we are seeing a plea to restore the why’s, to interrogate the causality, to work contextually into the things we do, which is consistently thrown out of the window by a patterned administrative centrisim. We are in a crisis because of administrative centrisim where even research data are used only for regulation. This is also reflected outside universities: citizens are burning things because we are actually not speaking to them as we amass data and impersonalise them into statistics; we do that with students as well. It is a kind of colonial inheritance that is almost self-perpetuating. [Pearl Sithole, UFS]

It is not helpful to characterise an entire sector with one phrase like ‘neo-colonial corporatist’. Also, it is not helpful when we still talk about people as ‘non-white’, even as we are trying to be revolutionary about it. We must be careful about the way in which we choose words. We need to be intellectually rigorous and avoid essentialising institutions and people to try to understand the problem; if we are afraid of complexity, this problem is not going to be solved. [Yunus Ballim, SPU]

**Concluding remarks**

This parallel session strongly foregrounded the physical barriers often experienced by people with disabilities, which initially focused the attention of the panellists and the audience. But the discussion took the debate further, bringing to the fore some of the complexities that need to be confronted in the intentional transformation of our institutions.
Remaking the university — transformative engagement

- Prof Ahmed Bawa, Chief Executive Officer (USAf)—Chair
- Prof Crain Soudien, Chief Executive Officer, Human Sciences Research Council (HSRC)
- Prof Xoliswa Mtose, Vice-Chancellor (UniZulu)
- Prof Adam Habib, Vice-Chancellor (Wits).

‘Universities tend to be seen as sites to materialise political interests and are always in danger of being captured.’

In his introductory remarks, Professor Ahmed Bawa made reference to the #FeesMustFall movement and noted that, at the time, there seemed to be no defence of the higher education system, ‘not from the private sector, not from industry, not from government, not from students and not from the communities either’. This foregrounded the question, Who owns our universities? It was, in fact, this perceived reality (and more) that became one of the foci of USAf’s Transformation Strategy Group; that is, to explore ways in which universities can be involved in local contexts so that citizens and society take ownership of universities.

The inputs from the three panellists were from distinctly different perspectives. In the end, it was in their different viewpoints that the complexities of transformative engagement were captured:

**Crain Soudien** (HSRC):

A central question is how institutions understand themselves. Theoretically universities, as places of ideas, of all the great institutions in society, ought to be able to reconstitute themselves most easily. And yet they are often places of entrenched orthodoxy.

What happens in universities, and how they relate to their locality, is often far more complicated than what is allowed for. Universities tend to be seen as sites to materialise political interests and are always in danger of being captured. There are many examples to illustrate this, and at the same time, of extraordinary attempts to engage contexts. To single out two: the history of the University of Pretoria (UP) shows that there was very little boundary between the University’s identity and the Afrikaner community it set out to serve. More recently, in the case of the University of South Africa (UNISA), the attempt by Prof Catherine Odora Hoppers illustrates achievements and challenges in bringing excluded indigenous communities into conversation with the University.

The key point is that universities have to open up the conversation of how they relate to the contexts in which they are situated.
Xoliswa Mtose (UniZulu):

Have we sufficiently problematised the present to move to the future? How can we be called on to reinvent and remake something that we were not part of creating? The theme of the conference should have been, ‘Reinventing South Africa’s universities for the future as African universities’.

African universities need to be reinvented and remade, imbued with African discursive formations and knowledge praxis. To become an African university, institutions need to develop their research, and teaching and learning networks within the African continent for mutual benefit between universities. We need to engage with the African archive and not gloss over the past, and identify the ideas that would serve as the foundations of local contributions to knowledge across the sciences.

Adam Habib (Wits):

Decolonisation and transforming our universities is a process that was not going to succeed in five or even 25 years; it is about getting the process going.

At Wits, for example, this has meant: making the university more representative demographically; getting the core business of knowledge production — teaching and learning, training professionals and research — to speak to the challenges, realities and possibilities of its context, including the diversity of the local (which is often presented as homogenous but is not); and building partnerships in a multiplicity of ways. Universities are about bridges between the local and global, the rural and urban.

There have been a number of achievements but some constraints remain; for example, while demographics are changing, institutional culture is not and alienation remains.

We are not a party school; too many narrow political interests have impacted the curriculum debate. We are a university with a critical discourse that needs to reflect the plurality of the society. The big project is how to use the university as a place for talented students from marginalised communities, and to give them a fantastic degree that gives mobility, and in so doing, to address inequality.

Points of discussion

Part of a university’s mission is to hold other social institutions accountable. In the Northern Cape, one in 10 children die of starvation. An institution that is concerned with human dignity and justice cannot say that running feeding schemes is not part of its responsibility. [Yunus Ballim, SPU]

Why are we not offering life orientation at universities when we are witnessing such an increase in health and wellness issues on our campuses? [Nonkosi Tyolwana, CPUT]
Concluding remarks

Crain Soudien: It is not about trying to reimagine the university in a completely different way — we have a pretty good idea of what a university is. The point is that we have to produce new ways or theories of understanding. Universities have to hold themselves to account too. If concern is expressed about a particular problem, it is the responsibility of universities to make the problem a space in which to have conversations with all involved. People will defend the university if they realise that it has their broader interests at heart.

Xoliswa Mtose: It was time to engage students better by seeking to understand their experiences and what informs their actions, and to involve them in finding solutions.

Adam Habib: It was not a case of nobody rising to the defence of universities during #FeesMustFall. There were many people who asked if there was any way in which they could help, as long as they did not have to pronounce themselves publicly. At the time, there was alarm that institutions were going to disintegrate. The question is, who was coming forward and saw it in their interest to defend the institution? It was largely the middle and upper-middle classes. How do we ensure that the poor in our communities also feel that they are part of our institutions?
4.2 Teaching and learning

Three key pivots anchored the discussions in the parallel sessions that are grouped under this strategic theme — monitoring student engagement and success; the future of teaching and learning in light of rapid technological change; and curriculum transformation:

- From gatekeepers to gateways: the opportunities and challenges of high risk courses
- Technology in learning and teaching in higher education: a futuristic view
- Curriculum for the future.

The complex problems associated with student success and throughput continue to manifest in inequalities in performance and graduation outcomes at universities in South Africa. While much has been achieved over the past decades, persistent challenges also remain. The focus in the first parallel session on teaching and learning was on monitoring student engagement and performance, and on high risk or priority courses. As noted by Prof Suellen Shay, these courses invariably constitute the epistemic building blocks of qualification pathways. The discussions also pointed to the limits that pedagogy can make to student success; and further, that while ‘the neat data points’ generated in the process of monitoring and evaluation can and do inform planned interventions and evidence-based dialogue, student engagement (and pedagogy) do not necessarily impact on curriculum design and implementation.

A useful counterpoint to the impact of rapid technological change on the future of universities was presented by Prof Paul Prinsloo in his argument against a benevolent reading and the need to ‘(un)think the smart university.’ Tied to this line of reasoning was also Prof Vasu Reddy’s position, in the third parallel session related to teaching and learning, that curriculum change and generating new forms of knowledge is, in itself, an act of ‘becoming messy, deliberately so’.

From gatekeepers to gateways

- Prof Suellen Shay, Professor of Higher Education: Centre for Higher Education Development (UCT)—Chair
- Prof Francois Strydom, Senior Director: Academic, Centre for Teaching and Learning (UFS)
- Ms Tsitsi Mpofo-Mkweta, Centre for Innovation in Teaching and Learning, and PhD candidate (UCT)
- Dr André van Zyl, Director: Academic Development Centre and Hemali Joshi, Department of Anthropology and Development Studies (UJ).

‘Knowing the problem is easy, finding solutions is where the hard work takes place.’

The three presentations focused, from different perspectives, on monitoring student performance and engagement, and the problems students experience in adjusting to the demands of university studies.

In her introductory comments, Professor Suellen Shay proposed two questions to frame the session: How can we move to a deeper understanding of the problems students experience, that would lead to better solutions? What roles do both students and staff have in turning gatekeeper courses into gateway courses? There are many things that we can do and which are in our control; the point, she said, is to investigate the problems students (and staff) experience, and to address these.

17 See also Paul Zeleza’s reference to surveillance in his paper, pages 18.
Francois Strydom (UFS):

Following on the pre-conference workshop on student success, held on 2 October 2019, the profile of students enrolled in South Africa’s public universities was again foregrounded: Seventy percent are first-generation students, 50% are 20 years and older, and about 50% (or 417 000) had applied for funding from the National Student Financial Aid Scheme (NSFAS) in 2019. While the statistics may be familiar, the point was made that universities may not have dealt in sufficient depth with what this means for the pedagogic relationship between students and lecturers, and the quality of learning and teaching.

Based on a collaborative project undertaken with USAf, the presentation focused on classroom engagement as one of the measures included in the suite of surveys that falls under the rubric of the South African Survey of Student Engagement (SASSE), the Beginning University Survey of Student Engagement (BUSSE), the Lecturer Survey of Student Engagement (LSSE), and the Classroom Survey of Student Engagement (CLASSE). With respect to the latter, two instruments aim to stimulate students’ engagement with effective learning practices: a) students report on the frequency of their engagement in specific high impact educational practices; and b) the lecturers of those classes report on the importance of the educational practices to students’ success.

The CLASSE instruments focus on first-year high risk courses/modules. Studies have shown that students typically have unrealistic expectations about marks, the difficulties they may encounter, and their preparedness for degree study. At the same time, they show great resilience and determination to succeed. The outcomes have illustrated greater student (and staff) agency, enhanced pedagogic relationships, and academic staff development conversations based on evidence.

Tsitsi Mpofu-Mkweta (UCT):

Mathematics is a subject that is considered difficult by many students. At UCT, a study focusing on a first-year mathematics course (MAM1000W) is exploring students’ experiences in focus group discussions with three groups: those who changed to another mathematics course; those who repeated the course; and those who succeeded ‘against all odds’. Further foci of the broader study include the degree of preparedness; differences between high school mathematics and mathematics at UCT; students’ perceptions of the resources available to them; and for those who failed the course, their strategies for improving their performance.

The focus group discussions have provided rich accounts of the way in which students deal with difficulties and impediments. Students’ narratives demonstrate their agency ‘not only in negotiating setbacks, but also in proposing institutional, pedagogical and curriculum interventions’ that would make it possible for them to succeed.

https://www.usaf.ac.za/what-were-learning-about/
André van Zyl and Hemali Joshi (UJ):

Universities use several measures to monitor student performance; for example: module credit success, throughput rates, and minimum time to completion. Over the past decade, the Academic Development Centre at UJ has used a student profile questionnaire to understand in detail the profile of students enrolled, and ways in which to be academically responsive to students’ needs. One example is the development of the Integrated Student Success Initiative (ISSI), and the move from a focus on module credit success to considering the contribution of modules to total credits (and total credits lost) which, in turn, has led to a focus on priority modules. Also under development is a priority qualifications finder (based on M+1 completion rates).

Twenty percent of modules are the cause of about 80% of the loss in credits. In order to track these modules, UJ has developed a Priority Module Index (PMI) which allows for the close monitoring of student performance within faculties, and the identification of priority modules that require intervention. Using the PMI, creative and academically sound ways to address problems in priority modules are discussed in an intensive and collaborative process, and through targeted resourcing.

Interventions are data informed, supported by faculties and senior management, and academically driven. While common principles inform planning and implementation, each intervention is customised for a particular context.
Points of discussion

I am interested in the lessons learned, as mentioned in the presentation by UJ, in monitoring and evaluation. Can you please elaborate? [Jerry Madzimure, VUT]

While it makes a lot of sense to get feedback from students and lecturers, does CLASSE point to issues in the curriculum? If not, how does one then get to that type of information? [Magda Fourie-Malherbe, SU]

I would want to ask that of the UJ colleagues as well: how often does a cluster of problems come up that changes the direction of interventions? [Suellen Shay, UCT]

Are we not at a point, specifically in relation to the DHET’s University Capacity Development Grant, where specific requirements ought to be specified for universities to qualify for funding? A proposal to the DHET could be developed by USAf’s Strategy Group for Teaching and Learning. [Rory Ryan, UJ]

Concluding remarks

Suellen Shay: As a general rule, the feedback loop between students, lecturers and curriculum design is not working as well as it should; students do course evaluations and raise all kinds of issues but there is not always a system in place to address these issues. What also needs to be considered are structural constraints that require systemic change; and secondly, the idea that there may be a limit to the change that can be brought about pedagogically to improve the effectiveness of a course/module. That said, there are examples of a positive feedback loop between lecturers who listen to students’ feedback and make the necessary adjustments. But whether this positive environment changes the effectiveness of high risk (or priority) courses is not clear — the data would suggest not, and that long-term systemic improvements are needed.

Hemali Joshi: In response to the question about monitoring and evaluation, there are many complex issues that have an impact on students at risk; monitoring and evaluation provides a bird’s eye view of implementation — the danger is always that some of the issues may be missed.

André van Zyl: Universities are strongly driven by targets that have to be met, including student success. At UJ we are careful not to ‘create results’ and are happy to see variation in the degree of success that can be attributed to specific interventions. In response to the big curriculum issues, my view is that structural constraints are often used as an excuse for a lack of responsiveness. For example, in priority modules at UJ we are in many instances finding creative solutions to structural constraints, and increasingly in discussions with academics, the focus is on including academic support in the design and delivery of modules.

Francois Strydom: In a 2017 publication we created an aggregate view of all the CLASSE surveys we have done at the University of the Free State and looked at specific areas where there are curriculum challenges. One data point is not enough to get to structure, therefore the focus in the work we do, both in relation to classroom and large-scale measures, is on multiple data points and evidence-led interventions.

19 Francois Strydom, George Kuhn and Sonja Loots (eds), 2017. Engaging Students: Using Evidence to Promote Student Success (Bloemfontein: Sun Press).
Technology in learning and teaching

- Prof Cheryl Foxcroft, Executive Dean: Teaching and Learning, Higher Education Access and Development Services (NMU)—Chair
- Prof Paul Prinsloo, Research Professor: Department of Business Management (UNISA)

Respondents:
- Prof Willie Chinyamurindi, Associate Professor: Department of Business Management (UFH)
- Mr Mike Swanepoel, Coordinator: Interdisciplinary Studies and Lecturer: Graphic Design, Department of Applied Design (NMU).

‘AI impacts on more than “just” teaching but on how we understand and validate knowledge claims, research, curricula, assessment and graduatedness.’

THEMED EXTRACTS      |     2

Paul Prinsloo (UNISA):

The focus was on (un)dreaming the smart university’: how do we talk about technology, universities, inequalities and social justice?

The notion of progress is often unthinkingly considered to be something ‘good’. Unless we understood the economic lessons from past revolutions, we would simply replicate them. Rapid technology advances realign existing power relations and structures, creating a complex inter-generational asymmetry. To change the global balance of power, there needs to be a history that focuses on the lives of the poorest and most marginalised. Add AI to a country as unequal as South Africa, what happens?

The underlying questions for universities are: what should robots be allowed to do, and what should they not do; and what should they not be allowed to do. For example, a benevolent reading of the smart city is that it is intricately connected, to the extent that it could use daily information to shape services and delivery. However, this was not the case; it also offered increasingly detailed ways in which the Internet of Things (IoT) can be used for citizen surveillance.

Although many were pushing back at the notion of the smart city, it was already up and running at the smart campus. Here, for those using IoT, it was able ‘to track and correlate students’ consumption of espresso with their Marketing I scores, to tell where they accessed WiFi, who they engaged with and whether they were engaged students’. At the business end, there were platforms that tracked a student’s Gmail account, social media and movement to be able to provide a composite report on the student.

But all is not negative. With large classes, we cannot achieve the interactive engagement we would want to have with students. But we can use an algorithm that will alert us if a student hasn’t logged on to the system, and that algorithm can enquire if all is fine with the student. We can work with the algorithm to aim for success. ‘It’s when the algorithm acts by itself, that’s when we enter the scary black hole.’
Willie Chinyamurindi (UFH)—respondent one:

The assumption that the 4IR would be enacted off an equal playing field is simply wrong. The 4IR may well result in inequalities becoming further entrenched, especially for the rural poor. The uneven impact of the 4IR and its ramifications in Africa might be that its benefits would bypass those already marginalised.

Further, the importance we place on different types of knowledge and their perceived value need to be considered. While online knowledge was attracting headlines, Indigenous Knowledge Systems (IKS) were arguably as valuable and perhaps more so in our context. How do we bring IKS and the technologies of the 4IR into dialogue?

Mike Swanepoel (NMU)—respondent two:

Who ‘owns’ the algorithm, why was it developed and why aren’t our universities developing more algorithms? These are the questions that underpin the 4IR. At the heart of the issue were a series of problems about information and knowledge. For example, algorithms reveal patterns in data; if there are historic biases in the data (e.g., men are more often hired than women, and are paid more), these will be perpetuated in what the algorithm can produce (gender biases in hiring practices and salaries).

In universities, not much has changed in our modes of teaching over the past decades — where else in the world can something remain so stagnant? We have to reskill over the next 10 years towards facilitation, interaction design, content curation, design thinking, design processes, game design and digital competence.
Points of discussion

A huge unintended consequence of technology advances has been the change from the postal delivery of print materials to students to an online system, which meant that UNISA’s massive printing house was no longer required. People were retrenched and not reskilled. [Hettie Wilson, UNISA]

What was the appetite to engage with AI upskilling on the part of staff, especially when existing platforms are so US and European centred? [Joyce Chappel, Dublin-based consultant, Ireland]

The discussion was dominated by the concern over job losses, as illustrated in the UNISA example that moved from a postal to an online system. Prof Paul Prinsloo commented that the online system was built on existing international models, and that the real problem arose because the unions demanded a change in the conditions of employment for workers. The issue of upskilling became political rather than technological.

The Chair, Prof Cheryl Foxcroft, brought the theme back into focus: ‘My relationship with my Fitbit watch is a good illustration. It’s a wonderful motivator and has, since wearing it, got me intimately involved with exercise by nudging me. The same needs to happen to online students. They need to have a living, motivated relationship with learning and the acquisition of knowledge.’

Curriculum for the future

• Dr Sizwe Mabizela, Vice-Chancellor and Principal (RU)—Chair
• Prof Ylva Rodny-Gumedé, Senior Director: Internationalisation (UJ)
• Prof Vasudhevan Reddy, Dean: Faculty of Humanities (UP).

‘It’s almost impossible to think about curriculum change without a full recognition of where we locate it and what the push and pull factors are.’

THEMED EXTRACTS | 3

Ylva Rodny-Gumedé (UJ):

Universities need to put innovation at the core of their academic mission and operations, aligned with societal imperatives, as captured, for example, in South Africa’s National Development Plan and the United Nations Sustainable Development Goals (SDGs). From an African perspective, the focus on innovation is key to breaking with colonial legacies. Each university will need to leverage its own competitive advantage in the offering of flexible, research-led and collaborative programmes where content changes as the world is changing, and at the same pace.

Key in teaching is the ability to inspire students, and in modes of delivery, to make possible novel and innovative ways of engaging students.
One size does not fit all: the need for individualised content choices, outcomes, study pace and graduation times will become increasingly important. Also, an innovative curriculum/ university makes it possible for students to customise their study programme to suit their life goals; provides forums for creative explorations and the sharing of ideas; attracts local and international students and embraces multi-culturalism and diversity; and provides opportunities for inter- and transdisciplinary and collaborative programmes.

Examples of innovative curricula and programmes include, for example: compulsory first year modules in critical thinking, entrepreneurship, creative writing; a ‘consciousness-based curriculum’ in which students are immersed in an academic topic aimed at self-exploration; low-residency models; and more.

Vasu Reddy (UP):

The focus of the presentation was, at the request of USAf, on the national project, *Unsettling Paradigms: The De-colonial Turn in the Humanities Curriculum at Universities in South Africa*. The project involves eight South African universities and is funded by the Andrew W Mellon Foundation of New York.

The name reflects the heart of the project: moving from fixed positions to one which unsettles paradigms so that there can be a ‘recovery’ of our diverse heritage around voices, perspectives, absences and gaps, recognising that these aspects of the past impact on the present. The three Rs of the project are: recontextualising — what choices are made and how they are arranged; reassessing — canonical figures and themes in syllabi; and repositioning — which is less about destruction and more about decentering.

Six large research projects are ongoing, and an online portal has been developed to archive and make available all material produced by the project. More recently, the project also launched the open access *Journal of Decolonising Disciplines.*

20 See https://jdd.up.ac.za/ojs/index.php/JDD
Points of discussion

The Chair, Dr Mabizela, opened the discussion by inviting Prof Suellen Shay, in reference to the excerpt from her writing quoted, to comment on what ‘the curriculum of the future’ should be:

There are three drivers that present a challenge to the curriculum: redressing inherited inequality; the decolonial turn and its focus on knowledge; and 21st century challenges, such as the 4IR and changes in the world of work. My question to the panellists: how do we bring these drivers together to move forward? [Suellen Shay, UCT]

In reference to Vasu Reddy’s explanation of the decolonial turn, why was it necessary to refer to a re-reading of the Euro-American canons; why would we want to centre the empire and its logic? [Puleng Lenka-Bula, UFS]

There are ways in which canon texts can be used to deconstruct the curriculum; for example texts by the 19th century German philosopher who portrayed Africa as a dark continent can be juxtaposed with contemporary texts. [Tsitsi Mpofu-Mketwa, UCT]

Were there short-term measures to test different curriculum changes? [Simon Trump, ISFAP]

How much do students need convincing of their new role in learning, such as co-creating the curriculum? [Faye Taylor, ACU]

Concluding remarks

Ylva Rodny-Gumede: The ‘old canon’ can be used in different ways; for example, I have used Hegel’s Aesthetics and articulating that from the perspective of the African concept of Ubuntu in commenting on the Venda movie, Elelwani. About measures of curriculum relevance or strength: these should be based on how best the curriculum would benefit the students, often from a financial perspective.

Vasu Reddy: I was not propagating a re-centring of the empire but was actually asking for a critique. That, in itself, is an act of re-reading, an intervention, a process which leads to creating new forms of knowledge which is about ‘becoming messy, deliberately so.’ That is what education should be: it should be troublesome, it should problematise, and it should engage the contestations. We are moving away from binary opposites.

The test for curricula are about how they relate to the kind of graduate attributes we want to instil. They could also be tested in terms of whether a particular curriculum, combined into a degree, led to employability, a big evaluation marker for universities.

Students’ core work had changed radically in the last five to 10 years and there is a deep reluctance to even go to classes. Students do not want to be burdened with the kind of expectations we may have. The big question that is being asked of colleagues in the Unsettling Paradigms project is whether students were extensively engaged in creating the curriculum, or if it were just lip service. Student-centred co-creation of curricula is wonderful stuff, but how best to organise students to participate is the question.
4.3 Research and innovation

The leadership of universities in South Africa and USAf’s research and innovation strategy group are closely familiar with the critical role of research and innovation in the development of individual universities, the university sector and society more broadly. Three parallel sessions are grouped together here:

- The state of higher education research in South Africa
- Ethics and integrity in research publishing
- Imagining the exponential and entrepreneurial university of the 21st century.

The first parallel session presented highlights of a study commissioned by the National Research Foundation (NRF), and provided a perfect lead-in to this strategic theme in its focus on bringing together different types of assessment related to funding, capacity and performance:

‘The report arguably constitutes the most comprehensive empirical assessment of the South African research enterprise. Over the years, various studies have been conducted that are either mon-method studies (bibliometric studies or scientometric studies) or focussed on a single sector (such as the university sector) or single components of the enterprise (such as investment in research or research output. The final product brings together four different but complementary types of assessment which are reflected in the structure of the report.’

The state of higher education research in South Africa

- Prof Thoko Mayekiso, Vice-Chancellor (UMP)—Chair
- Prof Johann Mouton, Professor and Director: Centre for Research on Evaluation, Science and Technology (SU)

Respondent:
- Prof Rasigan Maharajh, Chief Director: Institute for Economic Research on Innovation (TUT).

‘Science finds its raison d’etre in its consistent and persistent pursuit of truthful knowledge. This is both an epistemic and moral imperative.’

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22 Ibid, Preface.
The high-level findings can be summarised as follows:

1. **South Africa’s investment in Research and Development (R&D) has stagnated over the past fifteen years.**
   With R&D investment unchanged at around 0.8% for most of this period, the national target of 1% (and 1.5%) remains elusive.

2. **There has been a significant decline in the contribution of the business sector to expenditure on R&D.**
   An analysis of expenditure by source of funding shows that the government increasingly funds the biggest proportion of R&D in the country. The business sector (BERD) funded approximately 56% of all R&D in 2001, which declined to 39% in 2015, even though business still spent R13.8-billion in the 2015/16 financial year.

3. **There has been a decline in FTE researchers.**
   While the number of researchers have increased by 3 400 over the past five years, this increase is due to the growth in the numbers of postgraduate students and postdoctoral researchers. The increase in overall numbers masks a decline in full-time equivalents (FTE) employed as researchers within universities — from 5 0978 in 2014/15 to 4 702 in 2015/16 — the first time there had been a decline in the last decade.

4. **The proportion of staff with a PhD has increased substantially, as has the production of doctoral graduates.**
   The average number of doctorates per million of the population increased from 21 in 2000 to 49 in 2015. However, compared to other countries in the world, South Africa still lags behind: lead countries had more than 400 PhDs per million of the population in 2015 and comparator countries 3 to 4 times higher ratios than South Africa.

5. **South Africa’s overall research performance (output and world share) has been excellent.**
   South Africa’s output of articles and review articles in the Web of Science increased from 3 668 publications in 2000 to 15 550 in 2016. This increase represents an average annual growth rate of 2.9%. Also, South Africa’s share of world output more than doubled from 0.4% in 2000 to 0.91% in 2016, with our world rank position improving from position 34 in 2000 to 28 in 2016.

6. **South Africa’s scientists and academics increasingly collaborate with international scientists, as reflected in the increase in co-authored publications; and our system is well-rounded with a balance between national and international collaboration.**
7. **Citation visibility has increased for most of South Africa’s research publications and in most knowledge fields.**
   At an aggregate level, citation impact has moved up from a performance level below the world average (0.66 in the four-year citation window of 1996 to 1999), to ‘international level’ status in less than two decades, with an impact score of 1.13 in 2016.

8. **University publication output has become more inclusive with respect to gender and race; i.e. women and black authored publications.**
   Since 2005, women researchers had gone from 29% to 33% in 2016 in all fields. While differences remain across fields, these are commensurate with international trends. Over the same period, the change in black authors, in all fields, had gone from 16% to 34% by 2016, with a surprising leap in the field of Engineering.

9. **NRF funding has also become more equitable with respect to gender and race; i.e. funding for women and black authored publications across all fields.**

10. **But the trends and statistics presented in the study are embedded in national and sectoral contexts where different policies and imperatives are ‘at work.’ This includes:**
    - The growth imperative ‘publish or perish’ to increase output (publications and graduates)
    - The efficiency imperative: do more with less
    - The transformation imperative: make the system more inclusive
    - The internationalisation imperative: attract the best talent and co-operate more
    - The relevance and impact imperative: align science with societal goals, and
    - The excellence imperative: do science that is of high quality and integrity.

In complex systems where these powerful imperatives co-exist, it is not surprising that there are multiple instances that illustrate the lack of alignment and co-ordination across our science, technology and innovation (STI) system. Not only do imperatives not always align, but they can also work against each other and produce a range of unintended and sometimes perverse consequences.

Are these imperatives equal, or are some more equal than others? The evidence suggests that trade-offs will have to be made. Thus Prof Mouton’s concluding remark: if science were the pursuit of truth and excellence, then the other imperatives — impact, relevance, transformation, efficiency, utility — are means to an end and not ends in themselves.
Prof Rasigan Maharajh (TUT)—in response:

While acknowledging the importance of Prof Mouton's study and 'manifesto,' the findings need to be understood in the context of the global higher education system.

China, now in an 'innovation-led' development phase, is an example of a thriving economy where science and technology are the tools used to improve the quality of life of her people. Is there the will, in South Africa, to resource the system to achieve the desired levels of knowledge generation and innovation?

The notion of 'stagnating' as a sector could be turned around to 'having failed to reach the targets'. Is there capacity to process this kind of detailed information, and what kind of facility is there to reconcile the setting of targets versus performance, and the resources that would be required to make it possible to catch up and even transcend the targets?

Fewer researchers in the South African system who are expected to produce more translates into exploiting researchers and underlines the unfair remuneration of doctoral candidates and postdoctoral fellows. It could also mean that if there is growth in the system, it is mainly administrative and not reflected in academic capacity where we are contracting.

Even when the figures are positive, these need to be interrogated to get to the underlying truth. We may be producing more PhDs but what is the quality of these dissertations? And are they relevant to the economy and its development? We need to consider the decline in science and innovation within the broader context of the country’s economic decline, and the deterioration in social cohesion. Are we interested in the pursuit of knowledge, and are we willing to put aside the resources necessary for the instruments that generate that knowledge?
Points of discussion

We are producing more with less which is a good thing but it can only go so far. We need more resources in the system but the economy is not growing and the private sector is not investing sufficiently in R&D. What if we made it mandatory for the private sector to allocate funding to universities for increased R&D? I am also concerned that politicians are pushing the system for short-term political agendas and that the leadership of our universities are not pushing back enough. [Adam Habib, Wits]

Picking up on discussions at the conference, and specifically Peter Maassen's input, why are we so reticent in the sciences about voicing our findings? The national system of innovation is still a policy dream which needs to be brought to life. [Ahmed Bawa, USAf]

What was the rationale behind the NRF policy to apportion only 5% of research funding to foreign scholars? The policy seems to contradict the data on the contribution of international PhD students and scholars to the South African higher education system, particularly those from the rest of the African continent. Why should these scholars only be allowed 5% when all the trends suggest that PhD students from the rest of Africa will soon outnumber their South African counterparts? The second part of my question is about camouflaged forms of xenophobia that manifest in policy and the actions of institutions in dealing with ‘foreign nationals’ from African countries. The hardships that many who want to study in South Africa go through to get permits from the Department of Home Affairs represent the tip of the iceberg when it comes to hidden forms of institutional xenophobia. [Patricio Langa, UWC]

Concluding comments

Johann Mouton: I agree that the short-term agendas were coming from a range of governmental institutions, and that Vice-Chancellors have to be more courageous to push back at these directives. And that includes USAf. In reference to the questions raised by Prof Langa, I share your bewilderment at the NRF allocation restriction of foreign nationals and the potential of this regulation to destroy a crucial area of growth.

Rasigan Maharajh: When data are presented to government, a typical response is not a rational debate but an unexplained decision that is authoritarian in nature. We ‘shape theory from facts’ has been one of the banners this week; in so doing, we also need to remember that we are part of a global context.
Ethics and integrity in research publishing

- Prof Eugene Cloete, Vice-Rector for Research, Innovation and Postgraduate Studies (SU)—Chair
- Dr Gansen Pillay, Deputy Chief Executive Officer: Research and Innovation Support and Advancement and Dr Molapo Qhobela, Chief Executive Officer (NRF)
- Prof Stephanie Burton, Vice-Principal: Research and Postgraduate Education (UP)
- Prof Narend Baijnath, Chief Executive Officer (CHE).

‘The bigger the boom in research publishing, the weaker the quality checks seem to have become.’

Gansen Pillay (NRF):

There has been a vast increase in research outputs worldwide: at present there are over eight million researchers, over a quarter of a million new PhDs qualify each year, and about four million articles are published across more than 40 000 journals. An analogy used by Australia’s Chief Scientist, Dr Alan Finkel, is useful to think of the publication process as a bridge that has evolved from a simple footbridge with a handful of pedestrians, into what Finkel calls ‘a triple-decker multi-lane high-speed monster freeway’.

This growth in the quantity of research outputs needs, however, to be balanced with quality and research integrity. There is growing concern globally about unethical and questionable publishing practices, including predatory publishing, indiscriminate strategies and ‘gaming’ the publishing systems.

In South Africa, a study undertaken by the Centre for Research on Evaluation, Science and Technology (CREST) showed that, from 2005 to 2014, the DHET paid at least R100m to universities for predatory publishing among South African academics. As a result, the NRF spearheaded the formulation of a joint statement with the Academy of Science of South Africa (ASSAf), the CHE, the DHET and USAf that sets out a national position on ethical research and scholarly publishing practices. The good news is that predatory publishing is decreasing in South Africa – only 130 articles were picked up in 2017, compared to 850 in 2014.

There is now a move towards accredited courses in research integrity in South Africa and internationally. Can we as a science system consider launching an online course that will be a requirement for all who apply for research grants? Further, a platform should be established between the NRF, DHET, ASSAf and the Scientometrics and Science, Technology and Innovation Policy (SciSTIP) Centre of Excellence (SU) to share information on scholarly publishing and ways to identify questionable publishing practices in the country.

The 7th World Conference on Research Integrity in 2021 will be hosted by UCT, and presents further impetus to advance research ethics in South Africa.

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23 https://wcrif.org/images/2019/ArchivePlenary/day1/alan_finkel_s_speech.pdf
24 See also Alan Finkel, 2019. To move research from quantity to quality, go beyond good intentions, Nature 566, 297. doi: 10.1038/d41586-019-00613-z
26 https://www.nrf.ac.za/media-room/news/statement-ethical-research-and-scholarly-publishing-practices
Stephanie Burton (UP):

The value and purpose of research and publishing is to generate new knowledge and to find answers to questions. If this new knowledge was not made available, the potential benefits cannot be realised. Without publishing, there is not much point in conducting the research, and if the relevant stakeholders do not have an opportunity to use or engage with new knowledge, there would be little benefit.

Recent media reports have claimed that South African researchers were being paid personally for the articles they publish, and that this was driving unethical behaviour. The reference is, in fact, to the national subsidy universities receive for research outputs. It needs to be said that it is not common practice for such monies to be paid to individuals, but rather, to support the development of their research.

A further dimension to understanding unethical behaviour relates to data collected on the basis of unfounded assumptions leading to tenuous conclusions. Who is being unethical here — the supervisor, the researcher or the entire value chain? We all have good policies, processes and committees, but how do we know that our researchers are behaving ethically? This is the question that keeps every Deputy Vice-Chancellor for research awake at night.

Narend Baijnath (CHE):

The CHE hosted a conference in February 2019 on Promoting Academic Integrity in Higher Education that attracted participants from eight countries on the continent. Some of the papers presented at the conference will be published the South African Journal of Science (SAJS),27 a themed issue focused on academic integrity and quality assurance.

There are several factors that have influenced research integrity. An unintended consequence of the DHET policy (2005) on research output subsidy, while encouraging academics to focus on research and increase outputs, has been the negative and more pernicious effect of some institutions giving direct incentives to staff. Another negative consequence has been the ‘publish or perish culture’ for institutions to generate income and, of course, for researchers to improve their publication output.

Plagiarism seems to be a pervasive problem. To illustrate, a study undertaken by researchers at the University of Johannesburg (UJ) showed that of 371 articles published in 19 South African management journals in 2011, 50% had high and excessive plagiarism.28 If academics are plagiarising, they are likely to turn a blind eye and be less vigilant when it comes to their students. A further problem is ‘salami-slicing’ and publishing in low-end journals: a researcher who takes two years to produce a really ground-breaking article will get credited and rewarded in the same way as someone who has produced five low-quality publications.

From a quality perspective, it is imperative that institutions deal decisively with breaches of research ethics and integrity so that the consequences of such behaviour become a deterrent.

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27 https://www.sajs.co.za/editorschoice  
Points of discussion

Prof Eugene Cloete suggested in opening the discussion that a useful reference was the global code of conduct for research in resource-poor settings to prevent what is referred to as ‘ethics dumping’: that is, exporting unethical research practices to contexts where there were not strong systems in place for ethical approval.

The NRF workshops have brought about greater awareness of predatory publishing. But identifying predatory journals wasn’t always straightforward. Where do we get advice —the DHET or the DSI? Also, about research subsidy earned: it will be useful if the DHET issues a statement to all universities that subsidies for publications are not for personal use. [Phindile Lukhele-Olorunju, UMP]

Concluding remarks

Dr Rocky Skeef, the NRF representative on the local organising committee of the forthcoming world conference at UCT, responded to Prof Lukhele-Olorunju: the NRF and DHET currently have two separate lists of predatory journals and are working towards creating one national list.
Imagining the exponential and entrepreneurial university of the 21st century

- Prof Zeblon Vilakazi, Deputy Vice-Chancellor (Wits)—Chair
- Prof Bavesh Kana, Centre of Excellence for Biomedical TB Research (Wits)
- Prof Brian Armstrong, Adjunct Professor: Graduate School of Business Administration (Wits)
- Mr Dhesigen Naidoo, Chief Executive Officer, Water Research Commission (WRC).

‘Can someone stop this train? What do these great accelerations mean for universities?’

The opening remarks of the Chair, Professor Zeblon Vilakazi, set the tone for the presentations and discussion that followed. In contrast to the view of the orthodoxy of universities presented in a parallel session on transformation, Prof Vilakazi presented a video clip of the Nasa lift-off in 1969 for the first moon landing, which was, at the time, ‘an intellectual, physical, technical and engineering leap of faith.’ The power of the computers that guided the first mission to the moon, he said, was ‘a millionth of the power of the computer you have in your pocket. … Now quantum computing can crack a code within minutes that a normal computer would take almost a million years to do.’

What do these great accelerations mean for universities?

THEMED EXTRACTS | 3

Bavesh Kana (Wits):

We have all these technological advances but we still have a lot of human suffering. Is technology where it needs to be? Innovation is about bringing technology to the problem — in that way we can start changing the world.

The example of the diagnosis of tuberculosis (TB) illustrates: for 120 years the diagnosis remained the same, testing sputum and getting results six weeks later. By improving a diagnostic device developed in the United States, GeneXpert, a team of researchers at the DST-NRF Centre of Excellence for Biomedical TB research and colleagues in the health sciences developed a technology, SmartSpot, and a spin-off company.

Based on inoculated TB samples, the product used biomimicry to introduce diagnostic quality controls in the form of culture deposited on ‘spots’ on paper cards. These cards can easily be sent to wherever molecular diagnostic instruments are used, and results are available within two hours. The innovation has resulted in an 800% increase in efficiency in the diagnosis of TB, and a significant reduction in cost and biohazard risk.

The World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) have endorsed the product.

From this small lab at Wits, bacteria are now sent to the national programmes of different countries to verify TB diagnosis, which includes almost every country in Africa that has a TB problem. The SmartSpot website shows 64 500 spots dispersed to over 570 sites around the world — ‘that is societal benefit and impact’.

The SmartSpot innovation has also led to the development of six new products for field trials, in collaboration with local and international partners.

The advice to innovators: keep it simple; ensure sustainability for end needs, and the adaptability of products for changing markets; imagine the product, on scale, in its environment; and build partnerships outside the academic space.

29 See also Section 4.1, page 25.
30 https://smartspotq.com/
Brian Armstrong (Wits):

Salim Ismail\textsuperscript{31} defines ‘exponential’ organisations as those whose impact are at least 10 times larger than the impact of their peers because of the way they embrace new digital ways of operating.

Another characteristic is that they experiment and create a culture that enables risk-taking and failure; university structures favour predictability and safety.

The most critical challenge for universities is to get leadership right. To become an exponential and innovative university, we need to appoint chief digital officers who are visionary strategists, digital innovators, change managers and can do the hard work, pay attention to detail and get the job done. Further, the massive transformative purpose of universities is to equip students with the knowledge and skills needed to thrive in the 21st century. This means making sure they develop the necessary skills, such as being able to programme, think critically and process complex information.

But, no matter how digital universities become, their humanity will set them apart.

Dhesigen Naidoo (WRC):

Water has for the past nine years been in the top five risks to the global economy. There has been an exponential increase in academic papers about the water crises, yet, in South Africa, new knowledge is not translating into tangible products and solutions.

Prof Kana’s presentation was really encouraging because it is rare: South Africa has been responsible for some of the world’s dynamic and disruptive innovations, from lithium batteries, to reverse osmosis systems, to dry cooling systems. But these great innovations are commercialised elsewhere, and we have to buy the products.

The Water Research Council (WRC) does a great deal of work with universities, and the hope is that universities will scale up and commercialise the innovations that come out of some of the joint research projects. One project is to re-invent the 2000-year-old technology of toilets. In partnership with Columbia University, the new technology will reduce the volume of water used — from six litres per flush to less than half a litre; the target is 250ml. This new technique will save 30% of household water in South Africa. A by-product is the production of energy and it looks set to generate a $1b annual revenue. Universities shouldn’t struggle with creating spin-off companies to handle their technological innovations because they have huge expertise on how to set up companies.

\textsuperscript{31} Salim Ismail et al., 2014, \textit{Exponential Organizations} (NY: Diversion Books).
Points of discussion

There was uncertainty as to whether the DHET should regulate the spin-off companies created through innovation. We do not want to over-regulate but it was easy for these enterprises to lead to corrupt practices. [Di Parker, DHET]

What has been done for TB could surely be done for other diseases too? [Kevin Pather, UMP]

Would our school system affect what needed to be learned? USAf has set up an Entrepreneurship Development in Higher Education initiative because of the paucity of innovation and entrepreneurship at universities. We need to put the knowledge from Master’s degrees and PhDs to work too. [Ahmed Bawa, USAf]

It needs to be kept in mind that universities are not organisations, or definitely not complete organisations. [Peter Maassen, University of Oslo]

UCT has set up a private equity fund to provide capital for innovation. Universities must be brave and bold enough to commercialise and make the billions that other countries and institutions are making out of innovation. [Ashley Francis, UCT]

Concluding remarks

Bavesh Kana: SmartSpot is regulated through its Board, and the DST-NRF Centre of Excellence where it is based has a scientific advisory board, so regulation by the DHET would seem unnecessary. And yes, universities should stop being shy about making money. If they do not promote what they do, they will run the risk of losing talent. In response to Prof Bawa’s point about entrepreneurship, we have to find hybrid ways of teaching it. Some things we can learn, others we have to learn by doing (such as drawing up business plans).

Brian Armstrong: With respect to the gap between schooling and universities, it is hugely disempowering if students do not have basic mathematics or maths literacy. Also, they need to be able to navigate cyberspace and to do targeted navigation, which comes from using computers. About universities as organisations, maybe they are not. But we do not have the luxury to wait for the perfect science of organisational design — we need to experiment now.

Dhesigen Naidoo: Some universities have old endowment funds which are overregulated.
4.4 Funding and sustainability

Student funding has dominated the university sector in South Africa for the past two decades and more, and especially since the start of the #FeesMustFall movement and the announcement, in December 2017 by the then president Jacob Zuma, that the government would provide free higher education and training for poor and working-class undergraduate students. Implementation started at the beginning of 2018 and will be rolled out over a five-year period. This means that, by 2024, all undergraduate students who are financially eligible in approved programmes will be fully funded by NSFAS.

An ongoing concern has been the sustainability of the December 2017 policy decision, and the consequence for the funding of ‘missing middle’ and postgraduate students. What funding models are sustainable? And should fees be regulated? These were some of the questions that preoccupied participants in the first session grouped under this theme.

For a long while too has been the concern with higher education funding, decreasing subsidies to universities, and maintaining and further developing the infrastructure for a growing and evolving sector. These pivotal themes to the systemic well-being of universities were addressed in three sessions grouped together here:

- Student funding – past, present, future
- Higher education funding — realities and parameters
- Infrastructure for a growing and evolving sector.

**Student funding – past, present, future**

- Prof Rob Midgley, Vice-Chancellor and Principal (WSU)—Chair
- Dr Thandi Lewin, Chief Director: Governance and Management Support (DHET)
- Prof Philippe Burger, Pro Vice-Chancellor: Poverty, Inequality and Economic Development (UFS)
- Mr Sizwe Nxasana, Ikusasa Student Financial Aid Programme (ISFAP).

*I think we all agree that we need a long-term solution, and we need policy stability... It is obvious that we have to do things together.*

The presentations in the first session captured the critical dimensions to current and possible future student funding scenarios: government policy and the NSFAS; models for income contingent loan schemes and public-private partnerships; and an example of a private sector bursary scheme now in its third year of operation.
Thandi Lewin (DHET):

Student funding has remained one of the most important and fundamental necessities for access to higher education and training, and for student success. The policy directives are clear: both the White Paper 3 (1997) for higher education and the White Paper (2013) for post-school education and training emphasise that students should not be prevented from pursuing their post-school studies because of their inability to pay.

NSFAS funding has grown exponentially since 1995, from 40 000 students to 450 000 students in 2016 (including TVET students from 2007). The NSFAS funding allocation to universities alone was R9.9 billion in 2017/18. The new allocations for the bursary scheme have also been accompanied by a significant increase in the baseline subsidies to universities and TVET colleges from 2018 (R11bn additional funding to universities over the 2018 medium-term expenditure framework (MTEF)). The student funding policy shift has been significant. Since 2018 the focus has been on implementing the new model, on achieving policy stability and developing at a national level a student funding policy that is rational, fair, affordable and implementable — with all partners and for all students.

Cohort studies have shown that NSFAS students’ performance is consistently above those of the general student population, despite funding not always covering all their needs. We need now to get to a funding regime for all students and not only for those funded through NSFAS — i.e. a comprehensive national financial aid system that is able to respond to the multiple funding needs of students in the post-school system of education and training.

The focus needs to be on partnerships and complementary roles, and on effective implementation. The recommendations of the Heher Commission need to be revisited, and the ISFAP pilot recommendations for the funding of ‘missing middle’ students, among others. The role of institutions in this partnership will remain critical.

Philippe Burger (UFS):

Government finances are under severe pressure and it is likely that there would be a real reduction in subsidies and in NSFAS. We need to consider alternative funding for students who are not eligible for NSFAS funding, something that would ideally open the door for an income contingent loan scheme, and public-private partnerships (PPP).

But there are potential challenges: private funding would be needed, and such a scheme should be part of a public-private growth initiative that requires a sectoral master plan between government, higher education institutions and the private sector. There are several models that can be considered in implementing income contingent loan schemes. Government will have to underwrite such a scheme, given the absence of collateral, the lead time until loans start yielding a return, and the reality that total repayments might fall short of total loans over the full life cycle of loans. Can government fill this gap? At the same time as a national master plan is being developed, there are three possible ways to reduce NSFAS payments: firstly, by capping the amount paid for tuition and students’ self-funding if tuition is more — this would affect universities
with higher tuition fees; secondly, by introducing additional criteria (e.g., preference being given to particular fields, and capping bursaries to other fields); and thirdly, by leaving the NSFAS threshold at R350 000, thus reducing the real value of the threshold.

All these steps would reduce NSFAS’s implicit liability, and leave more students to find alternative finance, which means they join the ranks of the ‘missing middle’ students.

**Sizwe Nxasana (ISFAP):**

A private sector initiative, the Ikusasa Student Financial Aid Programme (ISFAP) was launched in 2017, focusing on ‘missing middle’ students and those from poor backgrounds.

By 2019, the programme was funding 1700 students across 11 universities in the country. Strategic partners are government, organised business, and professional bodies. In three years, ISFAP has increased its funding from R53.8m to an estimated R248.5m in 2019. The aim is to raise over R26bn over the long term, with the majority coming from the private sector.

In 2019, the Department of Trade and Industry (dti) published revisions to the B-BBEE Codes of Good Practice, which specifically deals with skills development expenditure. Four points are now allocated as an incentive to employers to encourage contributions to bursaries for black students. This is potentially a game changer for the plight of ‘missing middle’ students in South Africa, and for a programme such as ISFAP.

ISFAP-funded students are enrolled in scarce-skills degrees in finance, technology, engineering and the health sciences, and have achieved, on average, a 92% pass rate. The programme provides wrap-around support to students: funding, psychosocial support, and accommodation and learning support, with managers appointed at each of the participating institutions. What also sets the programme apart is that students are supported beyond their first degrees, and can be funded up to doctoral level. This is to ensure that students from poor backgrounds can continue with postgraduate studies and specialise, and contribute to high-level skills and knowledge needed to grow South Africa’s economy.
Points of discussion

Our universities face two big problems, the first the ‘missing middle’: we have over 400 000 to reach and the question becomes how quickly we can find ways to reach them. The ‘missing middle’ students were the real challenge of the #FeesMustFall movement. Secondly, how do we manage the politics around the students who qualify for NSFAS? Should we not consider a differentiated system where, for example, students at Walter Sisulu University, and at the campuses located in Mthatha, East London, Butterworth and Komani in the Eastern Cape get full subsidy? [Adam Habib, Wits]

It is a grave concern that nothing is being done about the differential fees between universities. The Minister says don’t leave the historically disadvantaged institutions behind, but what is being done to ensure this? Of course, the total cost of funding benefits institutions with high-end fees more than HDIs. [Tyrone Pretorius, UWC]

Insert Photo 52a of Professor Tyrone Pretorius, next to the comment above (choose the better between the two images provided)

We say that government deals with policy, NSFAS provides the funding. But we all know that the situation is more complex than that. NSFAS students often have to repatriate money home to support families. My second point relates to sustainability: what will a scalability model look like? [Sizwe Mabizela, RU]

We need a national conversation to consider different models. I think we all agree that we need a long-term solution, and we need policy stability. We don’t want a solution that lasts for three or four years, but something that is sustainable and will see us through the next 20 years or more. The question is: who will convene these conversations? It is obvious that we have to do things together. [Ahmed Bawa, USAf]

Concluding remarks

Thandi Lewin: We are caught between politics and implementation. When we look at allocations we have to factor in that government has the upcoming National Health Insurance scheme to fund and social services. As government we have to think about how best to spend the money we have. We also have to factor in who gets to university, who succeeds, and how to balance an excellent university education for all.

There are socio-political issues around how we change the discourse. Fee regulation discussions are happening and are tough because, as Prof Pretorius pointed out, there are huge differentials between institutions.

Philippe Burger: In response to Prof Habib’s point, to introduce a system where there are some fee-free institutions would have a negative impact and will have stigma attached. What is needed is one financing subsidy scheme where you have a differential fee structure. Private sector funding is crucial, and an undertaking from government, stipulating what it will fund, and what it will underwrite.

Sizwe Nxasana: If new legislation is needed to regulate how institutions issue loans, then that should be done. We have done a lot of work on income contingent loans; in this respect, at least five pieces of legislation would need to change. For example, Prof Burger’s proposal that banks could lend directly to students with government underwriting the loans, either by using the banks’ loan repayment system or the South African Revenue Service (SARS) to collect repayments, may mean that SARS needs to change the Act to make that possible.

In response to Dr Mabizela’s comment about NSFAS students often needing to send money home, this is a broader issue that needs discussion. When we built the ISFAP system, we made it scalable and included a tracking system. We know that students’ funding needs far exceed what existing funding instruments can provide.
Higher education funding — realities and parameters

- Prof Rob Midgley, Vice-Chancellor and Principal (WSU) — Chair
- Dr Diane Parker, Deputy Director-General: University Education (DHET)
- Dr Vimal Ranchhod, Chief Research Officer: Southern Africa Labour and Research Unit (UCT).

‘The cost of higher education should be shared equitably by public and private beneficiaries.’

**THEMED EXTRACTS | 2**

**Diane Parker (DHET):**

The principle of cost sharing is a fundamental part of our higher education policy landscape. The White Paper 3 of 1997, *A Programme for the Transformation of Higher Education*, recognised the public and private good of higher education, and therefore that the costs for higher education should be shared between public and private beneficiaries. It also recognised that the lack of finance should not prohibit academically deserving students from access or success.

The White Paper of 2013, *Building an Expanded, Effective and Integrated Post-school Education System*, affirms this cost sharing model, and commits government to strengthen NSFAS and fully fund poor and working class students; to find a solution for funding the so-called ‘missing middle’ students; and, in line with the National Development Plan, to provide access to full cost of study (FCS) funding through loans/ bursaries, backed by state sureties, to be recovered through arrangements with SARS.

The three income streams of public higher education are subsidies, student fees, and third stream income.

Subsidies are distributed in the form of a block and earmarked grants through a performance-based framework that includes enrolment planning, teaching input and output grants, and a research output grant. Block grant allocations increased by 173.1% between 2009/10 and 2019/20 in nominal terms but the eroding effect of inflation (at CPI) means a 61.3% growth in real terms. Student enrolment growth over the period (31.5%) equals a net increase in the per capita full time equivalent (FTE) student allocation of -19.4%

Student funding has remained a vexed issue (see highlights above). Currently about 50% of student fees are paid by the state.

A comparison of student fee income generated in 2017 across the 26 public HEIs shows a wide range, which in part can be explained by what is included in the fee structure of different universities. The full cost of study also varies greatly across institutions.

The DHET is working towards a regulatory framework for setting fees in higher education, based on advice received from the CHE. This is important to ensure affordable fees and sustainable institutions. In the interim, yearly social compacts on fee increases are discussed with universities, which is a significant change from individual institutions setting fees in line with their own requirements.
**Vimal Ranchhod (SALDRU, UCT):**

The data presented are part of an ongoing USAf-DHET project to determine the cost of producing an undergraduate-level graduate in South Africa, by university and degree type.

Funding to the university sector has grown, and is projected to grow well above CPI inflation (at approximately 5%). The university sector now accounts for over 60% of DHET expenditure, and is forecast to climb to over two-thirds in the next three-year cycle.

In 2016, the proportion of total income was 40% subsidy, 33% fees and 27% third stream income. Both income and expenditure increased sharply between 2009 and 2016. The increase in revenues might be explained by fee increases, but what was driving the increase in expenditure — sustained enrolment growth? Partly, but not sufficiently: between 2009 and 2016, the total income and expenditure of the sector increased by 88% and 98% respectively; student FTE enrolments increased by about 20%.

The rate of increase in the number of academic FTEs is greater than the increase in the number of student FTEs which means that the increase in expenditure cannot be fully explained by more students or by CPI inflation. A likely (but not certain) implication may be that academics received above inflation increases in remuneration over this period.
Points of discussion

CPI does not include all the cost pressures of higher education (and 5% is wrong); it is perhaps not the most appropriate to frame the discussion. [Stan du Plessis, SU]

It will be useful to explain the sharp rise in expenditure which is a total basket, including technology, doubtful debts, professional and support staff, and increases in academic staff and students requiring increased infrastructure. Remuneration increases at the lower and upper ends is a general trend in universities, not only in South Africa. A further point, there are two ways of understanding the proposed fee regulatory environment: that fees will be set at a national level; or alternatively, that there will be a national framework within which universities will be setting their fees. [Tyrone Pretorius, UWC]

We need to look at price regulation for a rational cost differential for fees. If different between institutions, then they serve different markets. [Stan du Plessis, SU]

In response, one cannot do that with education, we do not have a cost-based system. Most of our students do not have the luxury of choosing markets. [Thandi Lewin, DHET]

Concluding remarks

Diane Parker: In response to Prof Pretorius, we have been in a situation, since 2016, where we come to a compact with institutions; there will be a regulatory framework which we plan to have finalised by September 2021, but we still have to work out the way in which the framework will be implemented.
Infrastructure for a growing and evolving sector

- Mr Manie Regal, Executive Director: Finance, Innovation, Operations and Infrastructure (UWC)—Chair
- Prof Heather Nel, Senior Director: Institutional Planning (NMU)
- Mr Thato Lehutso, Senior Manager: Business Processes WitsICT
- Mr Ludwig Hansen, Member: DHET Macro-Infrastructure Framework (MIF) Infrastructure Development Support Team.

‘Don’t underestimate the power of space. ... We need to plan for a humanising experience where students and staff feel affirmed, nourished and encouraged so that they can grow.’

Infrastructure development illustrates the importance of space (and place) in future-orientated universities in South Africa. The presentations demonstrated the growing need for universities to be responsive to context and to become socially and locally embedded — to move from the insular, closed ‘cities’ they traditionally have been to become an integral part of the communities they serve.

**Heather Nel** (NMU):

Universities have positioned themselves as entities separate from society for too long. Local embeddedness, a recurring refrain throughout the conference, was critical. We need different paradigms and perspectives that look at the purpose of planning in terms of a bigger eco system.

A university’s infrastructure is no longer just for staff and students. We need ‘hubs of convergence’ where students, academics, support staff and community members come together to tackle some of the challenges that confront communities and the broader society. Also, futuristic institutions would need to accommodate multi-generational learners in re-configured spaces. Learning environments have to be created in all areas; residences need to become living, learning and digital spaces too.

Institutional planning can no longer take place in silos. While done in consultation with academics and deans, all planning priorities must align with both internal and external environments. In turn, infrastructure plans need to be informed by the University’s strategic and academic plans. Everyone wants new buildings, cutting-edge technology and the best IT infrastructure. These ‘wish lists’ need to be prioritised and factor in contextual (local community, national and global) imperatives. In this way, universities can become much more locally embedded.
Thato Lehutso (Wits):

There is a generational mismatch at universities: older academics who prefer face-to-face interaction are pitted against Generations X, Y and Z, and Generation Alpha students born within the information technology era. Students are increasingly asking, Why do I have to be in class? Why does getting my qualification take so long?

Universities need to forge government and industry partnerships to contend with the impact of technological change and a rapidly changing world of work. At the same time, universities face resource constraints, fuelled by increasing numbers of students who need living and learning spaces, and the contextual realities of safety and security, and social and service delivery disruptions.

In re-imagining future campuses, student-centred learning environments need to involve collaboration and engagement with an online environment that makes it possible to learn in new ways. The future may be fully automated smart classrooms (with no chalkboard in sight), a learning innovation centre and reconfigured furniture where students are able to stream into lectures and interact.

Ludwig Hansen (DHET):

A university campus has a finely tuned ecology. Questions that needed to be asked are: What is the nature of the future university; and what is our spatial response to students’ changing needs?

An example to illustrate: the Sol Plaatje University was designed to become engrained in the very fabric of the city Kimberley, which it has succeeded in becoming. It is now part of the city’s 24-hour life. The DHET is creating baseline criteria for infrastructural development for all 26 universities so that we can correct past mistakes and desist from working in silos.

Access to space and collaboration is key: Why allocate vast space to parking lots when most of our students make use of public transport or walk to campus? Universities are also custodians of vast tracks of land — they have both heritage and under-utilised space. The DHET is helping universities to assess space and to optimise the use of buildings by looking at building and programme efficiencies (e.g., six lecture halls used for only six hours a day is clearly inefficient).

Universities need interchangeable, shared, dedicated, flexible but heavily used spaces — spaces that can become meeting points with stakeholders and partners and that make universities visible to their neighbours and the community they serve. Universities have a transformative role to play in our society and hold a lot of sway. Vice-Chancellors are often quasi mayors of their towns. Open-ended architecture and heavily serviced spaces are what is needed, not principalities.
Points of discussion

It is widely accepted that the South African higher education system is becoming increasingly resource-hungry. For example, there is a huge drive to increase infrastructure but is the complete life cycle costs calculated when infrastructure is developed? Probably not. A further point: one of the key messages of the 2016 and 2018 Ernst & Young reports on the University of the Future is that universities need to revisit their operating models. Universities in their current form will become unviable (and unrecognisable) in 10-15 years. What is the future-readiness of our universities? And what are the so-called holy or sacred cows that the South African system needs to rid itself of? [Gary W Paul, CUT]

There are great inefficiencies in the use of space by both universities and cities; the case of libraries scattered across campuses and in cities is an example. Through student-centred planning and the sharing of spaces, institutions could realise significant efficiencies in infrastructure spending. Government has a role to play in this regard. [Segomotso Sebokedi, South African Student Cities Network]

A comment and rhetorical question by Dr Diane Parker appropriately concluded this session: Why is there always a belief that the government has to step in? Where does the agency lie? Institutions have formed their own partnerships and work directly with their communities and other stakeholders.

See also reference on page 14.
4.5 World of work

In line with the mandate of USAf’s newly formed world of work strategy group to advise universities on trends in the changing world(s) of work, in South Africa and globally, three parallel sessions were presented:

- Repositioning graduates as creators of work
- New technologies and the labour market
- Work integrated learning and internships — moving from a gravel road to a highway for reinvention.

Universities’ role and responsibilities in preparing students for a rapidly changing world of work has also resulted in the establishment of the Entrepreneurship Development in Higher Education (EDHE) programme, funded by the DHET. The aim of the programme is to equip students and staff with entrepreneurial skills as part of the core mandates of universities, and it is implemented in partnership with USAf.

Repositioning graduates as creators of work

- Dr Engela van Staden, Vice-Rector: Academic (UFS)—Chair
- Prof Sibusiso Moyo, Deputy Vice-Chancellor: Research, Innovation and Engagement (DUT)
- Mr Stuart Hendry, Convenor of Genesis Project: Applied Management, Faculty of Commerce (UCT)
- Prof René Pellissier, Director: Strategy and Internationalisation (CPUT).

‘Students are not miniature versions of ourselves. The digital generation is different and understands that information is everywhere and that the internet of things is already here.’

The question of graduates’ readiness for the world of work took centre-stage in much of the discussions at the conference. In one of the parallel sessions, three speakers approached the topic from radically different perspectives. One spoke of the inculturation of an entrepreneurial spirit within her institution, the second gave a practical example of how it works within an Honours programme, and the third delved into future scenarios for the world of work and higher education.
Sibusiso Moyo (DUT):

In line with the vision of the EDHE programme, Durban University of Technology (DUT) has made entrepreneurship a fundamental part of the university’s strategy and will continue to leverage its commitment to establish closer links with the business sector and communities in the region.

Too often entrepreneurial activities are understood in a limited sense that only concerns students; a programme of innovation must involve staff in the first instance. Through case studies and finding ways that staff can introduce entrepreneurial components into existing curricula, the entire field is rapidly expanding.

A useful tool in understanding the entrepreneurial role of universities is the 2018 Global Entrepreneurship Index which shows areas where universities are designed to respond effectively through their structures and activities. More directly useful to our South African context is perhaps HEInnovate, an online self-assessment tool that helps institutions explore their innovative potential.

The HEInnovate tool, developed by the European Union and the Organisation for Economic Coorperation and Development (OECD), guides practitioners through a process of identification, prioritisation and action planning in eight key areas of innovation. This tool makes it possible for universities (and TVET colleges) to identify areas of innovation, and to monitor success over time. Resources can also be downloaded, and the website provides access to practitioners and experts in the field.

Stuart Hendry (UCT):

The Genesis Project: Applied Management in the Faculty of Commerce at the University of Cape Town is entrepreneurialism in action. The Honours programme differs from other degrees at this level in one crucial aspect. In conjunction with the intellectual rigour demanded by the course, the participating students have to form a demographically representative group, and conceptualise and form a real profit generating business by the end of the academic year.

Now in its 27th year, the programme consists of the usual entrepreneurial components but does not end with a simulation or a business case but rather an actual product that has to be taken to market. Over the years, 125 businesses have been formed. Each group has its own board of directors drawn from industry, and has the chance to pitch its business for venture capital.

Students must learn while they earn, and learn to deliver under pressure and with minimal resources. They will ‘hit the wall’ when they feel that they cannot continue, but they have to learn to push through and, in the process, learn some mettle — it is this mettle that is the spark of the entrepreneurial spirit.

One of the exceptional businesses, established in 2011, employed four women who had been retrenched from the clothing industry in Cape Town. The business, Hout Couture, made use of the workers’ fine motor skills and retrained them to make bamboo frames for glasses and sunglasses, using imported Zeiss lenses. Three years later, they were exporting to countries in Europe.

34 https://heinnovate.eu/en
René Pellissier (CPUT):

Technology advances exponentially, humans don’t. But what humans do well is to adapt.

Forecasts show that by 2050 there will be 70 million people in South Africa, mostly living in and near urban centres, of which 40% will be living below the minimum wage. How should higher education respond to this future population challenge? By that time, will universities in their current form even exist? What will we teach? Will we teach?

The race is on between the advancement of technology towards consciousness and artificial intelligence (AI), and the speed with which we can adapt.

Research shows that 57% of all jobs are at the risk of being automated in the next five years; and that workplace automation will double in the next three years. But AI and robotics could produce more jobs and not mass unemployment if we can adapt in time.

The future of the university is our staff’s ability to help learners adapt and change skill sets. This requires a shift from a teacher-centred model to a context where learners are the teachers, the web is the curriculum, and staff are simply the experts in particular fields of knowledge who can offer support. The implication is that, first and foremost, our system needs to focus on ‘the Rolls Royce’ of our students — the PhD graduates who are entrepreneurial, are able to work as teams, are digitally literate, can lead change through complex problem-solving, and are accelerated learners.
**Points of discussion**

In what ways does a university ecosystem react to the changing workplace and the need to prepare students simultaneously for formal and entrepreneurial economies prior to entering the workplace? [Oliver Seale, HELM]

Do all universities have an entrepreneurial strategy already in place, or is the process currently run as an ad hoc arrangement? [Joyce Chappel, Dublin-based consultant]

**Concluding remarks**

Sibusiso Moyo: In response to question about strategy — we do have an institutional implementation plan which was the outcome of intensive discussions. But across the higher education sector, entrepreneurial activities are not coordinated and we therefore struggle to upscale initiatives. While there have been successes, much more needs to be done to communicate these effectively to the wider society.

Stuart Hendry: In response to Dr Seale’s question, the university’s ecosystem is a disaster as is the lack of funding, which means that the entrepreneurial project needs to be located in its own ecosystem. And in response to an institutional strategy — there are many brilliant projects but they are not coordinated; we need a lot more strategic, political and financial support from within the institution.

René Pellissier: While there are pockets of energy and excellence coming out of institutions where staff have gained the confidence to go into business, it is useful to remind ourselves that this is still an emerging field.
New technologies and the labour market

- Professor Ahmed Bawa, Chief Executive Office (USAf)—Chair
- Ms Amy Thornton, Researcher: Development Policy Research Unit (UCT)
- Dr Surendra (Colin) Thakur, Director: NEMISA KZN e-Skills CoLab (DUT).

'It is hard to provide a list of new occupations when these may change — the goal is to be able to move with the change; adaptability is the key survival skill.'

One of the ‘hot topics’ at the conference was how new and rapidly changing technologies will affect jobs and the economy, and the knowledge, skills and graduate attributes that should be developed to prepare students for the future world(s) or work. In broad overview, the views and analyses of two presenters are grouped here.

Amy Thornton (UCT):

How will the future of work change, and what are the consequences for labour supply? This is an important topic that has preoccupied labour economics.

It is clear that rapid technological advances will affect occupations differently, and that jobs will be different in the gig economy, also with respect to what are now familiar as standard employment relationships. The emphasis will increasingly be on a combination of technological and human skills.

Jobs won't just be lost, they will also be created. The World Economic Forum predicts that while an estimated 75 million jobs will be lost to 4IR technologies at the biggest firms in the world in the near future, there will also be a gain of 133 million new jobs.

Creating new jobs requires forward-thinking, and puts the emphasis on the role of government and higher education institutions in technological investment and skills development.

Early evidence of the impact of the 4IR on the labour market in South Africa shows an increasing return at the top end of the wage distribution where analytic, decision-making and creative tasks are needed. The bottom end of wage distribution benefits from the value placed on face-to-face interaction as well as minimum wage legislation, but there is muted wage growth in the middle part of wage distribution. The latter is due to at least three factors: sectors employing ‘the middle’ collapsing (e.g., agriculture, mining, manufacturing); technology replacing workers due to the routine nature of tasks; and many more similarly educated people competing for the same jobs.

Adaptability in the future world of work will be a key survival skill. On-the-job training and re-skilling will be an important part of how business leaders envisage employment growth.

Surendra Colin Thakur (DUT):

The change that is being ushered in by the 4IR must be harnessed and embraced, and universities need to anticipate and meet changing market demands.

Job extinction through retrenchments will occur when the industry no longer requires a specific functionality — through automation or obsolescence. This will have a far reaching impact on society and the economy, and reduce the tax base. But while industry is shedding some jobs, new ones are being created.

What is needed is a shift in thinking. Job sharing and re-skilling are options to explore. Reskilling to mitigate job extinction, and retraining to keep workers in the same roles rather than fundamentally changing their jobs, seem to be the better options.

In the next three years, it is estimated that 120 million workers in the world’s 12 largest economies will need to be retrained or reskilled as a result of AI and automation. In this fluid and changing world where new information and knowledge is updating at a rapid pace, lifelong learning is the way of the future.

Retrenchments and job losses due to obsolescence need not have a negative outcome. For example, workers retrenched from the financial services sector can be cross-trained as mentors and consultants for municipalities who do not achieve unqualified or clean audits. We also need to consider the cross pollination of disciplines in order to come up with workable solutions to some of the issues or societal challenges that demand our attention — collaboration is the way of the future.
**Points of discussion**

Why if motor manufacturing companies, for example, needed robotics specialists are universities not offering more electronics courses? We need to close the gap between universities and industry to become more relevant in the changing job market. [Phillip Bester, UNISA]

Universities do not optimise their facilities and programmes; we need to create channels to encourage this. To illustrate, if IBM said X number of people needed retraining, universities need to engage and find ways of packaging those needs. [Simon Trupp, ISFAP]

Why would students go to a university to study ICT when they could get a free education from IBM, or do a course with Google? In 2016, there were an estimated 6 000 ICT graduates in South Africa. What are the pull factors of universities when there are free options available? How can we make our universities more attractive? [Sonya Loots, UFS]

Much work still needed to be done on the regulation of new technologies. [Elsabe Schoeman, UP]

Gone are the days when business units were too specialised. When the finance department at UCT was digitised, we lost mundane jobs but we were creating new positions, such as marketing. The greatest problem was change management, and dealing with people's expectations and fear. [Ashley Francis, UCT]

Fears around job losses have to be factored in and managed, both on a personal level and with the unions. Why were universities still training accountants if they will be replaced by computers and algorithms that can get the job done? [Engela van Staden, UFS]

We need to look back at major changes that have happened in the past and avoid knee jerk reactions: foundational knowledge is still non-negotiable. Accountancy has been automated for 20 years; accountants now need to express opinion on financial transactions. [Dhaya Naidoo, TUT]

There has to be a convergence of science and humanities in the face of the 4IR, and if we want to halt the whittling away of the middle range professions, as Amy Thornton has shown. [Ahmed Bawa, USAf]

**Concluding remarks**

Colin Thakur: Electronics is offered at a select number of South African universities, and courses offered at undergraduate level were sufficient preparation for graduates entering the world of work. In relation to our competitors outside the universities, it was important to pursue funding partnerships with the private sector. We need to start thinking collectively and synergistically.

Amy Thornton: Multidisciplinary training creates adaptability through exposure to different ideas and subjects; blended learning is the way of the future. Scientists need ‘soft skills’ and humanities graduates need technology skills.

Prof Ahmed Bawa who chaired the session, said that the gig economy had huge potential for getting people involved in multiple projects but there were pitfalls. South Africa needs to develop a policy framework that regulates pension and health care provision.
Work integrated learning and internships

- Prof Henk de Jager, Vice-Chancellor and Principal (CUT)—Chair
- Dr Jeanette du Plessis (CUT)
- Dr Henri Jacobs, Deputy Director: Work Integrated Learning and Skills Development (CUT)
- Mr Gideon Potgieter, Chief Executive Officer, Resolution Circle.

‘Work integrated learning can be defined as a strategy that enhances the value of learning through the alignment and integration of academic learning with learning in the workplace.’

As universities try to keep pace with rapidly changing technology and disruptive shifts in what is required of lecturers, students and workers, Work Integrated Learning (WIL) has become increasingly important. Highlights of three perspectives are summarised here.

Jeanette du Plessis (CUT):

Experience — actual, physical experience — trumps any other kind of learning.

Our motto is: ‘What I hear, I forget. What I see, I remember. What I do, I understand.’ This conviction underpins the way in which the practical training component in the radiology department is structured to ensure that professionals are trained who can do the job and solve complex clinical problems on their own.

The objective is for WIL to develop skills and competencies, based on a sound knowledge base. It is not sufficient for students to operate on the basis of ‘I know, and I know how’. If students can demonstrate how to do something, they have developed the competency required.

Advances in technology increasingly make it possible for WIL to be facilitated in classes and laboratories. There are a host of new technologies that can enhance students’ learning experience and improve the safety aspects of training. Assessments can also be done in this virtual environment. It is clear that the impact of artificial intelligence on the future of radiography must be considered. For example, job functions will change, requiring that we develop critical thinkers instead of technicians. Inter-professional collaboration will also be necessary to develop complex problem-solvers who are able to work across disciplines.
**Henri Jacobs (CUT):**

WIL can be defined as ‘the practical workplace application of a combination of educational activities and academic learning’. It is often used as an umbrella term to describe curricular, pedagogic and assessment practices across a range of academic disciplines that integrate formal learning and workplace concerns.

Responsiveness to the changing demands of the world of work means that we need to prepare students with more than technical skills. Effective interaction and communication is important, as are creative thinking, problem-solving and listening. We need a curriculum strategy that enhances the value of learning through an alignment and integration of academic learning with learning in the workplace. This can include simulated learning, work-directed theoretical learning, problem-based learning, project-based learning and workplace-based learning.

But sector-wide, much remains in a state of flux. Clarity is needed on what is included in the definition of WIL, new management models need to be developed to support current programmes, and effective funding regimes need to be secured. WIL must become a flexible vehicle — if we are creative and innovative, we’ll be able to keep up with the pace of change.

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**Gideon Potgieter (Resolution Circle):**

The perception of employers is often that University of Technology graduates are untrained, inexperienced and are not ready for the challenges and demands of the workplace. More on-the-job training opportunities are needed, and greater collaboration with the private sector and state-owned corporations.

Yet universities seem to be ill-equipped to meet industry needs. For example, maybe only two or three universities in South Africa are focusing on robotics. This lack of responsiveness has led to a situation where the automotive factories have set up their own training centres because universities are not meeting their needs.
Points of discussion

There is a need for the pre-preparation of students for the work environment. [Fundiswa Nofemela, MUT]

A number of participants asked for clarification on the provision that is made in WIL placement for students with disabilities.

Another area of concern was the placement of international students in work-based learning or internship programmes in South Africa.

A general point was made that some companies were reluctant to pay students’ stipend during their internship, and were capitalising on the SETA contributions to save costs.

Concluding remarks

Henri Jacobs: As most of the funding available for WIL programmes comes from Sector Education and Training Authorities (SETAs), enhanced cooperation with the SETAs are important. The biggest hurdle is in the area of administration. An area that also needs to be addressed is what is certified, and by whom. In order to facilitate student mobility across borders, memoranda of understanding may need to be drawn up between the admitting university and the sending country.

Jeanette du Plessis: As much as we need to attract foreign investment to South Africa, we also need to attract foreign students. Many Africans from across the continent would like to study here, but are not able to do so because of the difficulty in obtaining study and work permits. About pre-preparation for the workplace: some patients do not want students to do their imaging examination. Students have to learn to act ethically and professionally, and know the patients’ rights. It is one of the reasons why simulation is so important before students are sent to work with real patients.
Conclusions

The structure of this report on Reinventing South Africa’s Universities for the Future follows the thematic themes set out for the conference and the recurrent issues in presentations and debate. The conclusion points to the way forward, for USAf strategy groups and the leadership of universities.

At a meta-level, universities as engaged social institutions framed many of the discussions at the conference, and was the explicit focus of three plenaries. Linked was the expressed need, and indeed imperative, for all universities and the sector as a whole to (re)gain a level of trust and ownership among their publics.

The capacity of universities, as social institutions, to fulfill the roles expected of them requires their emersion in context and in their unique locality. This is an issue with which university systems around the world are grappling.

In South Africa, the White Paper of 1997 and the Higher Education Act viewed engagement largely as community engagement, a ‘third mission’ relegated to the edges of the academic project of universities. In contrast, a cross-cutting theme and significant outcome of the USAf conference, discussed from different dimensions, was the need for universities and the sector as a whole to develop a holistic and contextually positioned framework that would take South Africa’s universities into the future.36

This overarching recommendation, linked to universities as engaged social institutions, frames the list of further recommendations which follows below, in the first instance grouped as sector-level recommendations; and secondly, linked to USAf’s strategy groups.

Sector-level Recommendations

1. While much has been achieved in the transformation of universities and the sector since 1994, there are new transformatory challenges. In addressing the next set of challenges, engagement as a lens or pathway will be critical.

2. There is a need, at a sector level, to develop a holistic philosophical framework to drive interventions, and to provide the opportunity for theoretical and experiential expansions on what is already in place.

3. USAf is best placed to drive this project; it is recommended that:
   a. Through its Transformation Strategy Group (TSG), each university be asked to produce a short (five-page) document on its strategy to move this process forward; and
   b. USAf consider hosting an international symposium that draws on experiments in South Africa and in other parts of the world.

4. Further, there is a need for a knowledge agenda that places the human at the heart of technological advances; it is recommended that:
   a. Universities build alliances with social forces to embrace the twin challenges of social justice and ecological sustainability;
   b. Universities help to construct innovation bridges and R&D platforms actively to explore sustainable alternatives to the existing orthodoxies of economic development;
   c. USAf and strategy groups explore prospects of establishing a publicly-owned national digital system to expand the size and reach of the higher education system; and
   d. USAf brings together a coherent agenda for the sector on the way that this new technology moment in which we find ourselves is galvanised for addressing the large national development challenges South Africa faces, and global challenges such as climate change.
In addition to these sector-level proposals and recommendations, what follows below is tied more closely to USAf’s strategy groups:

**USAf Strategy Groups**

1. **Transformation**
   a. USAf’s Transformation Strategy Group (TSG) to explore ways in which the sector and individual universities can involve students in the planning of projects and campaigns that lead to higher levels of societal engagement, and shape institutional culture change; and
   b. To consider ways in which to resource research into the ‘micro economies’ at play in universities and where the institutional culture gets stuck.

2. **Teaching and learning**
   a. USAf’s Teaching and Learning Strategy Group (TLSG) to develop a strategic focus on student success and development and to do so as a collaboration among institutions and other partners; and
   b. To design a programme of work that addresses the optimisation of the positive impact of technology on teaching and learning.

3. **Research and innovation**
   a. USAf’s Research and Innovation Strategy Group (RISG) to conceptualise a strategic project on building inter-institutional collaboration between South Africa’s universities;
   b. To work with government and business to find deliberate strategies to intensify the articulation between research, innovation and product-development;
   c. To explore with the ACU how best to implement the ACU-USAf recommendations on early career research development and a collaborative approach for the sector; and
   d. To consider further action with respect to unethical and ‘gaming’ publishing behaviour. For example:
      - Partnering with the DHET, NRF and ASSAf in developing one national list of predatory journals
      - Exploring the options of an online course in research integrity in discussion with CREST (SU)
      - Evaluating institutional rules of progression and how research performance is evaluated, and to develop draft guidelines for the sector
      - Promoting regular self-assessment of institutional policies and practices of research performing institutions
      - Preparing for the sector’s visibility at the 7th world conference on research integrity to be held in 2021.

4. **Funding and sustainability**
   a. USAf to pursue a national conversation to consider different student funding models that are sustainable over the long-term; and
   b. Through its Funding Strategy Group (FSG), to explore ways of using available funding for sector-wide priority initiatives.

5. **World of work**
   a. USAf’s World of Work Strategy Group (WSG) to model progressive economic alternatives to existing models of economic development; and
   b. USAf to develop a policy framework to regulate pension and health care provision in the future of work.
The conference theme was intentionally broad so as to generate a range of perspectives on the type and trajectory of change we want and envisage for our universities, and this was indeed the case. The presentations and deliberations showed that we need simultaneously to confront the impact of the past on the present, and anticipate possible future(s) for the academic project of our universities. In different terms, our situatedness in history and local realities, and at the same time a twenty-first century global world, means that finding solutions to some of the complexities require excellence — in teaching, research and innovation — and social justice.

Little did we realise, at the time of the conference, that a new world reality will be thrust upon us — the Covid-19 pandemic. What are the consequences for our collective futures as universities, both in the immediate and longer-term? In these complex times, it seems clear that the impact of rapid technological change which we closely considered during the conference — and the need to bring the human back into focus — will both take centre stage in the sustainability of our universities as engaged social institutions.
## ACRONYMS AND ABBREVIATIONS

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- **4IR**: Fourth Industrial Revolution
- **ACEP**: Academic Capacity Enhancement Programme
- **ACU**: Association of Commonwealth Universities
- **AI**: Artificial Intelligence
- **ASSAf**: Academy of Science of South Africa
- **B-BBEE**: Broad-Based Black Economic Empowerment
- **BUSSE**: Beginning University Survey of Student Engagement
- **CDC**: Centres for Disease Control
- **CEO**: Chief Executive Officer
- **CHE**: Council on Higher Education
- **CLASSE**: Classroom Survey of Student Engagement
- **COHORT**: Committee of Heads of Organisations of Research and Technology
- **CPI**: Consumer price index
- **CREST**: Centre for Research on Evaluation, Science and Technology
- **CSIR**: Council for Scientific and Industrial Research
- **DDG**: Deputy-Director General
- **DHEN**: Daily Higher Education News
- **DHET**: Department of Higher Education and Training
- **DSI**: Department of Science and Innovation
- **dti**: Department of technology and innovation
- **EDHE**: Entrepreneurship Development in Higher Education
- **FCS**: Full cost of study
- **FSG**: Funding Strategy Group
- **FTE**: Full-time equivalent
- **HAIs**: Historically advantaged institutions
- **HDIs**: Historically disadvantaged institutions
- **HEIs**: Higher education institutions
- **HELM**: Higher Education Leadership and Management Programme
- **HEQC**: Higher Education Quality Committee
- **HET**: Higher education and training
- **ICL**: Income contingent loans
- **ICT**: Information and Communication Technology
- **IERI**: Institute for Economic Research on Innovation
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<tr>
<td>IIE MSA</td>
<td>Independent Institute of Education, Monash South Africa</td>
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<td>IoT</td>
<td>Internet of Things</td>
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<td>IP</td>
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<td>ISFAP</td>
<td>Ikusasa Student Financial Aid Programme</td>
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<td>Integrated Student Success Initiative</td>
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<td>Lecturer Survey of Student Engagement</td>
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<td>Medium-term strategic framework</td>
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<td>Next Generation of Academics Programme</td>
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<td>R&amp;D</td>
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<td>Research and Innovation Strategy Group</td>
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<td>SA</td>
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