SATN2010
Annual Conference

MINUTES OF THE THIRD ANNUAL SATN CONFERENCE 2010

THEME: UNIVERSITIES OF TECHNOLOGY DRIVING HUMAN RESOURCE DEVELOPMENT THROUGH PARTNERSHIPS

30 SEPTEMBER – 1 OCTOBER 2010

VAAL UNIVERSITY OF TECHNOLOGY, VANDERBIJLPARK, GAUTENG

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THIRD ANNUAL SATN CONFERENCE
VUT, VANDERBIJLPARK, GAUTENG
DAY ONE: THURSDAY, 30 SEPTEMBER 2010

	WELCOME **Prof. Thandwa Mthembu** **Chairman of the SATN and Vice-Chancellor: CUT**
	Prof. Thandwa Mthembu extended a word of welcome to all delegates present at the Third Annual Conference of the SATN since its inception in 2006. Prof. Mthembu further acknowledged all delegates present and thanked the Vice-Chancellor of VUT, Prof. Irene Moutlana, for hosting the conference. A word of appreciation was also extended to the SATN's Inaugural Chairman, Prof. Roy du Pré, for all the work he has done. Prof. Mthembu drew upon the Chancellor of the California State University, Prof. Charles Reed's metaphor of a "train" to describe the knowledge economy's demand for Higher Education and limited resources, to match it with the requisite and relevant supply that leads to more innovation, job creation and socio-economic development. The SATN has invited the European based Universities of Applied Sciences Network (UASNET), represented by Prof. Henrik Wolff, to help South African UoTs to better understand the above metaphor of "trains". UoTs are part of a strategy to design new, bigger and more socio-economically efficient Higher Education "trains". The Minister of Higher Education and Training, Dr. Blade Nzimande, defined one of the most acute problems of South Africa at the beginning of this century as follows: "South Africa suffers from crime, high unemployment and a shortage of skills, needed to drive economic growth and social development". The Minister of Science and Technology, Ms. Naledi Pandor, introduced Teaching Innovation Agency (TIA) as follows: "TIA is part of the DST's effort to address the challenge presented by the innovation "chasm" or the gap between the local knowledge base and the productive economy.

South Africa is currently faced with the following 4-headed monster:

- Undermined local knowledge base that the innovation "chasm" does not render useful in the production economy;
- Acute shortage of high level and critical skills to turn the local knowledge base into social and technological innovation;
- In the absence of these critical skills, there is a stagnant, underperforming and deteriorating economy that should ideally help to drive economic growth and social development; and
- In the absence of social and technological innovation that builds economies across the world and foster development, more people remain unemployed.

At the Inaugural Conference of the SATN held in May 2008, the theme was "The Nature and Characteristics of South African UoTs". Subsequent to that, a book was published by the SATN entitled "The Place and Role of UoTs in South Africa". This book was SATN's humble way of defining who UoTs are and what they are about. The Inaugural Conference thus, aptly constituted the defining moment for UoTs. Further to this, the Performance Indicators (PI) Report submitted to the then Department of Education, will be used to judge/define the UoTs.

The theme of the Second Annual Conference of the SATN held in July 2009, was "Technological Innovation at Universities in South Africa towards Industrial and Economic Development". Exhibitions on technological innovations of UoTs were displayed in order to showcase how UoTs can be used to provide the knowledge base and produce critical and high levels skills that can be directly used to drive economic growth and social development. This was an attempt to show that UoTs have potential to contribute towards the economic growth and social development arena.

The 2009 Conference was about dealing with the innovation chasm, how the knowledge base could be exploited to make a direct impact on economic growth and social development and in turn, to make contributions towards reducing unemployment in the country, thus dealing with the following 3 heads of the 4-headed monster:

- Knowledge Base;
- Economic Growth and Social Development; and
- Reducing Unemployment.

The focus of this year's conference will be on tackling or dealing with the fourth head of the 4-headed monster, i.e. lack of critical and high level skills, hence the theme "Universities of Technology driving Human Resources Development through Partnerships". The forth head can only be addressed through fostering strategic partnerships with business, industry, government and civil society.

The conference will also be focusing on courting stronger ties with the Skills Development System, FET System and Business and Industry, in an attempt to address and carve a niche for UoTs.

	Prof. Mthembu indicated that a MoA will be signed between the SATN and the South African College Principals Organisation (SACPO), in an attempt to address the following: ▪ Assuring greater articulation for FET College Students into UoTs and other Universities; ▪ Introducing access programmes for students from FET Colleges; and ▪ Helping to upgrade the qualification of Lecturers in FET Colleges, especially in the areas of Science, Engineering and Technology (SET). The focus and deliberations of the conference in the next one and a half days will be on: ▪ Finding innovative ways of improving the UoT "trains"; ▪ Finding innovative ways of revolutionalising the mass transportation system of UoTs in the HE Sector; ▪ Finding innovative ways of neutralising the 4-headed monster; and ▪ Building strategic partnerships to be able to make substantial and maximal impact with the resources available.
	CONFERENCE OPENING **Dr. Blade Nzimande** **Minister of Higher Education and Training (HET)**
	The Minister of HET, Dr. B.E. Nzimande, opened the conference by congratulating the SATN on choosing a very important theme, i.e. "Universities of Technology driving Human Resources Development through Partnerships". The Minister indicated that the theme is important because the DHET is currently at an important juncture in the process of creating an integrated and differentiated post-school education and training system in the country. The DHET hopes that the discussions at this conference will hopefully contribute towards this process, particularly in the role of UoTs in the Higher Education and Training Sector. The current critical issue is the role of UoTs in a differentiated, but highly articulated post-school system and the new challenges posed by this issue. There is an increasing need for school leavers, post-school youth, and adults, employed and unemployed, to gain access to further and higher education training opportunities. There is a need to develop the people of South Africa with the relevant skills because of the ever-changing country; politically, demographically and technologically, within a world that is becoming increasingly competitive in the economic global environment. Human Resource Development (HRD) is becoming an integral part of the country's ability to sustain development. There is an urgent need to emphasize the importance of connecting the HRD initiatives with the education policy and other developmental strategies across all spheres of government. Interfacing

	the programmes of the DHET with a range of social and economic development strategies across all spheres of government, is necessary in order to align education and training to our overarching Human Resources Development Strategy (HRD-SA). In an attempt to systematically strengthen the skills and human resources base of the country, education and HRD have been identified by the government as key strategies for the development of the country, through reorganising the education system into an integrated post-school system and through the development of the workforce. The government has identified the establishment of a skilled and capable workforce to support an inclusive growth path as one of the desired outcomes of its five-year strategic plan. This target was set to systematically strengthen the skills and human resource base of the country. The DHET is drawing on the knowledge, ability and experience of all stakeholders in the sector in a partnership to tackle the skills development challenges. This can be achieved through the provision of equal opportunities for all, irrespective of social background. The DHET further needs to develop close cooperative agreements and relationships with a wide range of stakeholders to meet the strategic objectives of the plan. The Minister urged UoTs to improve access and strengthen their relationship with the FET College Sector, in order to facilitate articulation and progression in certificate and diploma programmes. The Minister also urged UoTs to build academic staff capacity in order to produce skilled graduates, thus creating a "new generation of academics". The following are the strategic priorities of the National Human Resources Development Strategy: ▪ *To accelerate the training output in the priority areas of design, engineering and artisans that are critical to the manufacturing, construction and cultural industries; and* ▪ *To accelerate the number of new training graduates, in priority economic sectors identified in ASGISA and the NIPF and IPAP.* The above strategic priorities are relevant to UoTs and can be addressed through the increase in the annual output of engineering technicians, technologists and design graduates as well as the development of progression learning pathways for artisan graduates. The contribution of UoTs towards increasing the supply of appropriately qualified people to meet the human resource demands in the areas of ICT, automotive, component manufacturing, chemicals, plastics, fabrication, pharmaceuticals, forestry, pulp, paper and furniture, tourism, bio-fuels, diamond and jewellery designs, agro-processing and the film and television industry, will also assist in this regard. Government is aware that without a deep-rooted culture of research, UoTs are increasingly finding it difficult to produce or contribute to national research at the same level as traditional universities. To this effect, the DHET is looking

	into creative ways of assisting UoTs to develop their capacity in the context of limited resources. In order for institutions to fulfil their core mandate of teaching, research and community engagement, there is a need for strong leadership to overcome the challenges faced by the country. This can be achieved through joint efforts and collaborations. It is hoped that the deliberations of the conference will assist with the establishment of concrete and workable proposals to assist the DHET with interventions that will help to position UoTs at the centre of education, technological development and innovation in South Africa.
	GOVERNMENT'S POLICY AGENDA: PROVIDING AN ENABLING ENVIRONMENT **Chair: Prof. Ahmed Bawa** **Vice-Chancellor: DUT**
	Prof. Mary Metcalfe **Director General** **Department of Higher Education and Training (DHET)**
	The central goal in the Minister's address is the need to develop a skilled and capable workforce to support an inclusive growth path. This goal is one of government's 12 key priorities around which Ministers are required to deliver. A skilled and capable workforce to support an inclusive growth path can be achieved through the following: ▪ Accelerating the number of new training graduates in priority economic sectors as identified in ASGISA and the NIPF and IPAP; ▪ Accelerating the training output in the areas of design, engineering and artisans, which are needed in the manufacturing, construction and cultural industries; ▪ Increasing access to high level occupationally-directed programmes within all scarce skills fields, such as Engineering Sciences, Human Health, Natural and Physical Sciences and Teacher Education; ▪ Increasing graduate output of Honours, Masters, Doctoral and Post Doctoral students; ▪ Building a culture of research at UoTs; ▪ Building the economy and improving societal conditions through innovation; and ▪ Stimulating entrepreneurship, innovation and growth. In order to achieve the above goals, there needs to be increasing access to the post-school education and training opportunities, with the intention of contributing towards building the nation. In addition, a strong, sound and visionary leadership is needed to overcome challenges, through dialogue between stakeholders and government.

	The forging and reinforcement of strategic partnerships between the Government, Higher Education System, FET Colleges, Private Sector and Industries are vital in complementing the work already done. There is a need for FET Colleges and UoT relationships to facilitate articulation and progression of students in certificate and diploma programmes. In addressing the above goals and strategies, on the basis of the principles outlined by the Minister, UoTs need to be ready and have the necessary policy instruments, to address the following challenges: ▪ Developing a national plan to expand access to an integrated, quality post-school education and training system with clear targets supported by the necessary human, financial and infrastructure resources; ▪ Redressing equity and access; ▪ Developing a qualification framework that maximises articulation and progress across the system; ▪ Having policy and funding frameworks that support a differentiated post-school education and training system; ▪ Facilitating distinctive institutional identities, and adequately funded institutions to optimally enhance its growth trajectory; ▪ Mobilising social partners, business, labour and government behind the education and training project, in accordance with the Skills Development Legislation and Act; ▪ Establishing strong institutional governance through existing relations between governance structures such as the CHE and the National Skills Authority; ▪ Improving success and throughput rates at institutions; ▪ Developing properly resourced institutional arrangements for Work Integrated Learning (WIL); and ▪ Providing adequate support for, and investment in research and innovation initiatives. In order to reduce inefficiencies and maximise complementarities, there is a need for the development of a public policy process that will review all components of the post-school education and training system, through a green paper process of engagement, followed by the consolidation of the comments received from the public. This is needed in order to develop a system that is conceptually and operationally designed, as a single nationally coordinated entity that maximises equity of opportunities and outcome, within a diverse and differentiated institutional base that is appropriate to the needs of the country. Moving forward, the following needs to be done: ▪ Mobilise social partners behind the project and its stakeholders for the effective use of resources; ▪ Re-examine what is being achieved in terms of a differentiated and articulated system and whether the NQF maximises or limits articulation possibilities; ▪ Review the Quality Assurance Council and its challenges in terms of success and quality;

	▪ Maximise complementarities across the post-school education and training system (PSETS) through the skills levy funding and national skills funding and sourcing innovative funding mechanisms; ▪ Build the next generation of researchers through research, development and innovation initiatives; The Differentiation Debate in the FET sub-system should be driven by a long-term national development plan. All Colleges must be differentiated by their own individual Programmes and Qualifications Mix (PQM), that driven by a long-term national development plan for the college system in response to various factors, including the following: ▪ Geographical location; ▪ Local labour market; ▪ Communities served by the college; ▪ Linkages with higher education; ▪ Regional, provincial and national growth and development plans and HRD strategies; ▪ Capacity of the college to offer particular programmes, as determined by the relevant quality council or assurer; and ▪ Historical inequalities. The National Skills Development Strategy steers R8-9 billion per year that is released to the state to improve skills development for an inclusive growth path. Currently there are 2 million youngsters who have no matric. In order to allow articulation, these have to be reached through the PSETS. Added to this, there is a need for a continuum of individual institutional missions and trajectories that articulate with each other. FET Colleges have to move away from the external school exam system and must set exams in the same method as universities, with external moderation and expert assistance. This will assist in professionalising FET Colleges through the improvement of the quality of exams and lecturer development. FET Colleges need to collaborate with UoTs to offer Higher Certificates and Advance Certificates based on a set of stringent criteria, viz: ▪ Offering corresponding NCT and NCV programmes; ▪ Limiting the number of Higher Education Certificates offered by each FET College; ▪ Having existing staff exchange programmes with HEIs; ▪ Setting standards of the minimum qualifications of academic staff of FET Colleges; and ▪ Setting admission requirements. The Minister is passionately committed to working with UoTs in achieving this vision.

Discussion	**Q:** UoTs have inherited a lot of staff members from the former technikons. Are there legitimate and coordinated strategies in place, to empower UoTs to build the capacity of these staff?
	R: HESA's Research Committee has made specific proposals on the alignment of the NRF, DST and DHET. The HESA Report will assist in this regard.
	Q: The theme of the Umalusi Conference was – "The importance of partnerships and providers". What is the role of provide providers in this regard?
	R: Private providers play an important role in the HE System. According to the policy framework, they do not receive subsidy, but they make significant contributions in specific niche areas.
	Q: Is it not time for South Africa to consider introducing a one year preparation programme to develop students and ensure that they are ready for higher education?
	R: The DHET is very concerned about the 1st year dropout rate, thus, the notion of one year preparation programme is attractive, necessary and widely accepted.
	Q: Are partnerships between FET Colleges and UoTs not the best strategies of improving the quality of lecturers?
	R: Partnerships will definitely play a vital role in improving lecturer qualifications.
	Q: Because of the high failure rate in HEI, the DHET is funding extended programmes. Added to this, there are collaborations between FET Colleges and UoTs, collaborations between the DHET and the Department of Basic Education (DBE). Is there no duplication of what should be done in the schooling system and what is currently done with extended programmes? How far is the collaboration between the DHET and the DBE?
	R: Students have to be treasured and supported. The UoTs are working with the DBE to ensure the production of teachers and excellent programmes to support them and improve the quality of teachers. That is the major role of the UoTs.
	Q: The new green paper process emphasises the new HE Framework. In the formulation of the framework, UoTs felt left out and that their voice was not heard. How does this new process ensure that the UoTs are not left out?
	R: The DHET acknowledges that the work done by the UoTs is critical and appreciates the way in which the UoTs have organised themselves under the rubric of the SATN. The work already done by the SATN makes UoTs a force to be reckoned with.
	Q: In order to strengthen UoTs, there is a need for experiential learning through Work Integrated Learning (WIL) and partnerships with industries. However, the funding formula for WIL is still not enough. How will this be addressed?
	R: There is a need to think outside the subsidy. The National Skills Framework Strategy 3 is proposing that more funding be redirected towards WIL.

	LEVERAGING GOVERNMENT AND GOVERNMENT AGENCY SUPPORT FOR INNOVATION AND TECHNOLOGY **Chair: Prof. Lourens van Staden** **Deputy Vice-Chancellor: Teaching, Learning and Technology: TUT**
	Ms. Jansie Niehaus **Executive Director** **National Science and Technology Forum (NSTF)**
	The NSTF is a representative stakeholder body of 110 science, engineering and technology organisations that seek to influence Science, Engineering, Technology and Innovation (SETI) policy formulation and delivery, in the interest of socio-economic growth in South Africa. The strategic objectives of the NSTF are to: ▪ Influence and catalyse quality delivery of SETI policy; ▪ Monitor and promote the health of the SETI system; and ▪ Celebrate, recognise and reward excellence within the SETI sector. The NSTF Awards are intended to recognise and celebrate individuals and organisations for outstanding contributions in SETI, for the purposes of: ▪ Achieving sustainable economic growth for South Africa and improving the quality of life of its people; ▪ Promoting excellence among SETI practitioners and research, development and innovation; and ▪ Encouraging young people to undertake careers in SETI. The support of government and government agencies is evident in the documents that have been published since 1994. This proves that innovation is firmly on the agenda. The argument is that the government has intensions and initiatives that are laudable, but the implementation thereof, is always difficult. The government's intentions with regards to innovation are evident in the following: ▪ National Research and Development Strategy; ▪ DST's Ten Year Innovation Plan; ▪ The Intellectual Property for Publicly Financed Research and Development Act; and ▪ The Technology Innovation Act. Regardless of the efforts that go into policy formulation and establishing structures, there has to be proper rollout plans. Government must consult experts and stakeholders from the early stages of policy formulation in order to monitor all mechanisms.

	The following questions were raised in respect of Intellectual Property Rights (IPR) Act: ▪ Do universities in reality produce IP and Innovation? ▪ Is the IPR Act able to promote what it says, in the context of an emerging economy like SA? ▪ Does innovation always need commercialisation, as stated in the Act? ▪ Is it necessary for government to always assess whether research should be in the commercial sphere or in the public domain? The IPR Act was drafted according to examples from the rest of the world and has not been successful in many other countries. The effectiveness of the Act will depend on a number of factors such as: ▪ The amount of support that Technology Transfer Offices (TTOs) receive from the National Intellectual Property Management Office (NIPMO); ▪ The availability of suitably qualified people to staff TTOs and NIPMO; ▪ The efficacy of NIPMO in terms of its turn around time and interaction with research institutions; ▪ Enabling inter-institutional an public-private partnerships; ▪ Enabling spin-off companies; and ▪ Enabling cooperation and collaboration with international partners. The 2010 NSTF Science Councils Symposium focused on the "Commercialisation of research outputs and partnerships with industry". The biggest challenge outlined was finding suitable partners within the industry to start the process of innovation. UoTs need to find solutions in addressing this challenge. The nature of innovation is such that it is inappropriate to rely on government to stimulate innovation. The nature of entrepreneurship cannot be regulated. Government can only set up the framework and create the necessary conditions. The past education system has not allowed for the development of an entrepreneurial spirit among learners. This is a long-term challenge for HEI. UoTs are ideally placed to take the issue of innovation forward, and are at the interface between theory and practice, and between academia and the market. UoTs are more able, through a multi-disciplinary approach, to integrate ideas across disciplines. Thus, UoTs are ideally placed to form partnerships for innovation.
	Dr. Andrew Kaniki **Executive Director: Knowledge Fields Development** **National Research Foundation (NRF)**
	The main partners of the NRF are UoTs and the rest of the HE System. It is a privilege to share with UoTs, what the NRF is doing. The drives of economic competitiveness include, investing in human beings in order to enhance productive capacities, profits and efficiencies, human capital and technological change.

	The institutions of the National System of Innovation include high level policy in the Presidency, the Ministry, Agency and Research and Innovation Performers. The Innovation System Value Chain is aiming at moving from basic research to the commercialisation thereof. This is in accordance with the mandate of the NRF, which is to support and promote research through funding HRD and the provision of the necessary research facilities in an attempt to create knowledge, innovation and the development of all fields of SET, thereby contributing to the improvement of the quality of life. The following are NRF Investment Principles: ▪ Competitive funding which is essentially one of the basic principles; ▪ Healthy balance between strategy-driven and demand-pull ideas; ▪ Merit-based and rigorous peer review to promote transparency, honesty and fairness; and ▪ Effective and goal-oriented resource allocation. The NRF is further investing in the following areas: ▪ Established researchers; ▪ Human Capital Development and unrated researchers; ▪ Strategic knowledge fields; ▪ Strategic platforms including research at the National Research Facilities; ▪ International initiatives; ▪ Applied research and innovation; and ▪ Community engagement research. The NRF is currently having discussions with the DST on how to review the RISA Grant expenditure and distribution of funding. Further to this, the NRF has developed strategic goals that will assist in the achievement of the 10 year Innovation Strategic Goals. These include, but are not limited to the following: ▪ Promoting internationally competitive research as a basis for a knowledge economy; ▪ Positioning the NRF as a world-class evaluation and grant-making agency; ▪ Growing a representative science and technology workforce in the country; ▪ Providing cutting-edge research, technology and innovation platforms; and ▪ Contributing to a vibrant national system of innovation. The NRF encourages UoTs to utilise all facilities available, effectively and efficiently. The NRF Vision 2015 has identified the following key strategic performance goals and objectives: ▪ Internationally competitive science, technology and innovation system; ▪ Representative research and technical workforce in South Africa; ▪ World-class science benchmarking and grant systems;

	▪ Leading edge research, technology and innovation platforms; and ▪ Vibrant national science system. Applied research will deliver the NRF Vision 2015 commitment that research will underpin societal well-being through a transformed society and a sustainable environment. The principle goal of Applied Research and Innovation (ARI), is to promote and develop applied research within the South African National System of Innovation, with the following key goals: ▪ Moving applied research outcomes through the innovation value chain towards commercialisation (THRIP and SANHARP); ▪ Supporting applied research that informs the policy, legislation and implementation, that underpins societal well-being values (AKILI, THRIP and SANHARP); ▪ Establishing broker relationships and processes that invigorate the applied research and practice community; and ▪ Engaging with complex systems to solve societal problems. The South African Nuclear Human Asset and Research Programme (SANHARP), is a programme supported by the Department of Trade and Industry (DTI), aiming at addressing some of South Africa's nuclear strategies, including the development of an industrial support base and supporting research, development and innovation. The Thuthuka Programme is a partnership programme implemented in collaboration with publicly funded South African research institutions and universities. It is funded by the NRF parliamentary core grant as an intervention targeting redress and increased access to research funding opportunities. The programme has been revised to include the following: ▪ Supporting researchers from designated groups, in their pursuit to attain a post graduate qualification or an NRF rating; ▪ Improving the research capacity of researchers from designated groups; ▪ Fostering a culture of research excellence and aiding in the development and expansion of the national knowledge-based economy; and ▪ Effecting transformation in the demographic composition of the established researcher community. There are new NRF Programmes aimed at growing disciplinary strengths by providing amongst others, incentives for rated researchers, research into community engagement, and competitive support for rated and unrated researchers. During the conference, there needs to be deliberations on the following issues that may have an impact on the way funding agencies interact with the UoTs: ▪ Role and relationship of TIA with institutions and the NRF; ▪ Different roles of UoTs in different environments;

	▪ Outcome of the differentiation debate; and ▪ Format and objectives of SARChI.
	Dr. Phil Mjwara **Director General** **Department of Science and Technology (DST)**
	The main aim of the DST is to encourage innovation and ensure that basic research becomes a key component of promoting innovation. The knowledge based economy is dependent on the following four interrelated pillars: ▪ Education; ▪ Innovation; ▪ Information Infrastructure; and ▪ Economic and Institutional Regime. When knowledge is generated, it becomes the basic form of capital for innovation that drives economic growth. The following are the five grand challenges of TIA: ▪ Farmer to Pharma value chain; ▪ Space science and technology; ▪ Energy security; ▪ Global change; and ▪ Human and societal dynamics. The biggest challenge in South Africa is bridging the innovation “chasm”. The philosophy and support of TIA is working with partners in order to increase the value of intellectual property. The aspiration of the DST is to enhance security competencies in the Forestry Industry, through the following programmes: ▪ Information Technology; ▪ Manufacturing Technology; ▪ Construction and Wood Technology; ▪ Biotechnology; ▪ Chemical Technology; and ▪ Energy and Environmental Technology. The DST will be partnering with the Department of Agriculture and the Department of Forestry, in an attempt to move agriculture and forestry from primary to secondary and tertiary agriculture by embedding technology into the sectors. Centres of competence are organisational instruments that allow different capacities that reside in the system to be brought together in an institutional form, in order to exploit the market.

	The Technology Localisation Plan provides an overarching generic framework for engagement in technology localisation initiatives, including the Competitive Supplier Development Programme. As part of the technology localisation plan, the DST ensures that the right expertise is available in the design of the technology package. A ten year research plan has been developed and will be looking at the following aspects: ▪ Understanding the changing planet; ▪ Reducing the human footprint; ▪ Adapting the way we live; and ▪ Innovation for sustainability. The DST has requested all UoTs and Science Councils to provide the advice needed to deal with climate change. The South African Risk and Vulnerability Atlas (R & V Atlas) collects various data and provides information about those areas in South Africa that would be vulnerable because of climate change. There are thus many areas in which UoTs can play a vital role in this regard.
	Dr. Mamphela Ramphele **Chairperson** **Technology Innovation Agency (TIA)**
	The objective and mandate of TIA is to support the state in stimulating and intensifying technological innovation in order to improve economic growth and the quality of life of all South Africans, by developing and exploiting technological innovations. The Strategic Objectives of TIA are to: ▪ Enhance strategic local and international partnerships to increase capital inflows for technological development and technology transfer in South Africa; ▪ Support the development of new or improved products and services for local and global markets; ▪ Grow the number of technology-based start-ups and SME's; and ▪ Support key industry sectors that are better able to utilise local and international technology innovation to enhance their global competitiveness. TIA offers the following Technology Development and Innovation products: ▪ Biotechnology; ▪ Advanced Materials; ▪ ICT; ▪ Energy Security; ▪ Production Technologies; and ▪ Human Capital Development.

	TIA is pursuing all the above strategic objectives by providing business support services such as essential infrastructure, advisory services, business development, product configuration and expert services. This, amongst other things, will assist with advice on IP transactions. There is a need to identify the gap between needs and what is available, to be able to produce what is needed. Partnerships will in this bring inbound technology transfer in order to fast track the development of products. The biggest challenge that South Africa is facing because of the continuing underperformance in the education sphere, is human capital development. In this regard, TIA's role is to be a facilitator for various entities to place interns and young people who want to explore their careers in particular areas. This is done through various strategic partnerships between HEI, NRF and the Private Sector. Added to this, TIA is focusing on technology diffusion for SME innovation and competitiveness. This is achieved through Technology Station Programs situated at UoTs. The challenge is the skewing of funding in terms of HE Expenditure. This will limit TIA's outputs. TIA's Act stipulates that its primary focus is on commercialisation of research outputs of all 23 HEIs. UoTs can thus exploit the following opportunities: ▪ Build on the already existing infrastructure and technological expertise inherited from its migrating entities; and ▪ Sweat these technological assets in pursuit of regional economic growth and economic imperatives, in line with the UoTs own regional agendas. TIA provides opportunities for UoTs to intensify their involvement in technology innovation efforts through: ▪ The well established Technology Transfer Centres and Technology Platforms at UoTs; ▪ The UoTs' emphasis on applied rather than basic research; and ▪ Targeted Human Capital Development in partnership with industry. In this regard, the partnership between TIA and UoTs must drive social impact initiatives.
Discussion	**Q:** What should the relationship between UoTs and Government departments and agencies be?
	Q: How should UoTs contribute to skills development initiatives of government departments and agencies?
	Q: How can government departments and agencies access the skills and expertise in UoTs?
	Q: How can UoTs form partnerships with the business sector?

	INTERNATIONALISATION IN TECHNOLOGY AND APPLIED SCIENCES **Chair: Dr. Mashupye Ratale Kgaphola** **Vice-Chancellor: MUT**
	The Chair indicated that Dr. Vicki Thomson and Ms. Tamara Wanker from Australia and the Netherlands could not make it to the conference and apologised on their behalf.
	Mr. Henrik Wolff **CEO / President: Arcada University of Applied Sciences** **Chairman: European Network for Universities of Applied Sciences (UASNET)**
	The European Network for Universities of Applied Sciences (UASNET) is an informal network of 11 Universities of Applied Sciences (UAS), and focuses on: ▪ The clarification of the profile of UAS in Europe, mainly done by conducting European projects and benchmarks; ▪ The international exchange of national developments, to function as a peer learning community; and ▪ The platform function for UAS and partners from SMEs, the business and public sector to meet, tune mutual experiences and expectations, and to set up new initiatives. The UASNET is further looking at promoting applied research in Europe, through the translation of professional practices into: ▪ Profession-oriented higher education programmes; and ▪ Demand-driven applied research. UAS are professionally oriented European HEIs that respond to the challenges of the European business sector. They educate professionals and conduct research in a broad range of subjects that are relevant to society, including: ▪ Economics; ▪ Teacher training; ▪ Social work; and ▪ Fine and performing arts. The EDUPROF project is a project that aims at mapping the various ways UAS in Europe take on the challenge of integrating the combination of education and applied research, in the curricula of the New European professional in the Knowledge Society. The major goal of the EDUPROF project is to increase recognition by profiling and positioning UAS with a focus on the Research and Development function, in an attempt to increase funding. Another goal is to establish good relations with the European Commission in order to increase the human capital of the

	UAS through: ▪ Improving the quality of applied research; ▪ Helping UAS professionals to find UAS partners for peer learning on the Research and Development function; and ▪ Ensuring and embedding research for good quality graduates. The importance of lobbying political support is increasing tremendously and UAS are at the heart of the EU agenda. The recognition of the role of UAS is growing in the production of research and innovation. A focus solely on research and development is no longer enough. There is a need for innovation and human capital in order to make the knowledge economy work. Thus, the public debate is shifting towards added value UAS and pressure for diversity within Higher Education. There is a need to create innovation projects and educational programmes for human capital in SMEs and public sector companies. Furthermore, there is a strong demand to strengthen the position of UAS through: ▪ Recognition and support on the national and European level; ▪ Influence the EU policy agenda and financial instruments; ▪ Use EU debate and position to influence the UAS position at home; and ▪ Use other national developments, successes and bottlenecks. The following questions were posed for the UASNET's teamwork in Europe: ▪ How to incorporate the trends in the EDUPROF project? ▪ How to move from EDUPROF to a sustainable UASNET? Forging partnerships and collaborations between the UASNET and the SATN will assist in exchanging ideas regarding matters of common interest. The collaboration between similar networks existing in the world will greatly assist in this regard.
	VUT RESEARCH PARTNERSHIPS **Prof. Joe Modise** **Director: Institute of Chemical and Biotechnology (ICBT) - VUT**
	The purpose of ICBT is to enhance commercialisation of universities through chemical and biotechnological capabilities in order to become dynamic, demand-driven, quality conscious, efficient, forward-looking, and responsive to rapid economic and technological developments. This is possible through partnering with other entities. The rationale behind the partnerships is to provide the specialists with knowledge based services that add value. These partnerships need to benefit students, researchers and the society for technological advancement. The ICBT is operating in the following focus areas:

	▪ Chemical and Process Engineering; ▪ Chemical Technology; ▪ Food and Biochemical Technology; and ▪ Environmental Technology. It is furthermore envisaged that research programmes would be established in the areas of: ▪ Natural Products and Medicinal Chemical Technology; ▪ Polymer and Rubber Technology; ▪ Green Science Technology; and ▪ Biotechnology. The spin-off companies enable individuals who have ideas to exploit them. UoTs need to create an environment in which ideas are welcomed and students are encouraged to exploit opportunities that arise from these ideas. These projects are given to research to become products, processes, licences and patents. The funds generated from the business units are ploughed back to the students. Currently the ICBT is exploiting an opportunity to partner with the Tzaneen Plant Oil Demonstration Centre in a project where oil is extracted from a seed of a special citrus fruit for cosmetic and medical purposes. The project is community based and is funded by the DST. The ICBT is currently faced with the following challenges: ▪ Mindset and mistrust internally; ▪ Organisational structure that does not support the activities; ▪ Policy issues especially in respect of procurement policies; ▪ Human resources processes and policies that do not support the initiative; ▪ Measuring the relevance of the projects; ▪ Legal issues such as accreditation and registration of companies; and ▪ Financial issues/obligations that may prove to be costly to the university. The following are the current projects of the ICBT: ▪ Sedichem; ▪ Technology Innovation Agency; ▪ Rand Water Foundation; ▪ ChemCity; ▪ De Beers Voorspoed Mine; ▪ ICT (Prague); and ▪ Syrenga BioScience.

	RESEARCH INTEGRITY: WHAT SHOULD BE ON THE AGENDA? **Prof. Laetus Lategan** **Dean: Research and Innovation – CUT**
	The Minister indicated that it is incumbent upon UoTs to create a research culture in their institutions. The current literature on research and research methodologies, indicates that there is very little reference at research ethics. Traditionally a view on research ethics is captured around the following: ▪ Fabrication of information and data; ▪ Falsification of information and data; ▪ Plagiarism; ▪ Research on human subjects; and ▪ Human interaction. Currently there is a growing interest in ethics beyond the field of medicine. This then implies that it is important to start illustrating what should be done in terms of upholding research ethics. To contextualise the above in the context of the SATN, the programme mix of UoTs are largely based on management and education. Ethics is a concept that is not isolated but includes other concepts such as integrity, loyalty and morality. The following case studies give context to the notion of ethics and can enhance some discourses on ethics: ▪ Loyalty to the customer comes first; ▪ One cannot expect ethical behaviour from others if one does not set the example; ▪ Striking a balance between roles and responsibilities; ▪ The lack of trust on ethics; and ▪ Core functions of universities. Ethics in the curriculum can play a vital role because of the following: ▪ Recognition that in the educational process, people are involved; ▪ Sensitise people to value issues that serve as a counterpart for reductionism; and ▪ Sensitise people to interact with the broader social community. The following are widely accepted ethical values: ▪ Preservation of life; ▪ Human dignity and uniqueness of people; ▪ Informed decisions and explanations;

	▪ Uniqueness of situation; and ▪ Notion of "I – You". The research process and cycle can be divided into the following broad phases: ▪ Research starting off with a problem and then leading to a solution; ▪ Moving from a solution to innovation; and ▪ Moving from innovation to commercialisation. The following should be on the agenda of the SATN in dealing with ethics: ▪ Values are driving research; ▪ Conflict of interest; ▪ Promoted interests; ▪ Roles and responsibilities; ▪ The research agenda; and ▪ Broadening the scope of our ethical understanding. Further to this, universities need to consider whether it is ethical to enrol students in a field in which they know there is no employment.
	ELLUMINATE IN ACTION **Rajeev Arora** **Vice President: Marketing and Strategy – Elluminate**
	In an attempt to minimise costs, the SATN purchased a license to make use of the electronic meeting platform of Elluminate. This enables the SATN to run its project committees via the computer and the internet. Elluminate is an online collaboration system that allows students to hold live synchronous class sessions. Elluminate also provides the following non-contact services: ▪ Hosting events; ▪ Training; and ▪ Online meetings. Elluminate can further assist universities with collaborations throughout the following stages of the student's life cycle: ▪ Pre-entry; ▪ Recruitment; and ▪ Induction. Another product offered by Elluminate is Blended Instruction, which makes virtual instruction possible and ensures that knowledge transfer is as seamless as possible. This also enables learners to record sessions and review them at anytime.

	The following are the three different collaboration platforms: ▪ Instant; ▪ Real Time; and ▪ Anytime. Elluminate aims at helping HEIs to change the way education is happening by ensuring that it is as seamless as possible.
	CLOSURE
	The first day of the conference was concluded at 17:10.

THIRD ANNUAL SATN CONFERENCE
VUT, VANDERBIJLPARK, GAUTENG
DAY TWO: FRIDAY, 1 OCTOBER 2010

	HIGH LEVEL SKILLS DEVELOPMENT AND THE ROLE OF UOTs **Chair: Prof. Lineo Vuyisa Mazwi-Tanga** **Vice-Chancellor: CPUT**
	Mr. Leon Beech **Principal: Northlink College** **Deputy Chairperson: South African College Principals Organisation (SACPO)**
	The South African College Principals Organisation (SACPO) congratulated the SATN for the appropriate timing of the event and the topical theme chosen. From the inputs of the DHET the major concern of the government regarding the millions of unemployed youth, can be deduced. The focus of the DHET is on the expansion of skills development in the country in order to create job opportunities for these unemployed youth. Further to this, the FET College Sector is central to the planning of the DHET on improving and increasing the delivery of programmes that can make the youth employable, thus contributing towards the reduction of poverty in the country. The UoTs are equally responsible in rendering the same services to the nation. FET Colleges and UoTs have to ensure a seamless articulation process between providers to prevent students from redoing qualifications. There is a further need to eliminate barriers that inhibit students from accessing higher education. Colleges have participated in a number of processes in an attempt to design a new landscape for the future. This included round table discussions, the inception of certain task teams and the appointment of a steering committee, strategic planning sessions and the FET Summit, which will assist Colleges to prepare for 2011. There is a great need for collaboration between HEI, FET Colleges and SETAs. Even though there are numerous partnerships between these stakeholders, these are often informal and are not always sustainable.

	These relationships further have the following obstacles: ▪ Funding from the state; ▪ In-service opportunities; ▪ Staff competence and development; ▪ Utilisation of sophisticated facilities; ▪ Quality assurance; ▪ Keeping abreast of technological advance; and ▪ Financial support for students. Even though much has been said about the traditional "N" programmes offered by colleges and the inception of the new National Certificate Vocational (NCV), there is a current legislative process to phase out "N" programmes. Thus, there is a need for the development of alternate qualifications or the review of the phasing out of the "N" programmes. Umalusi has been commissioned to review the NCV qualifications. These developments place a sense of urgency on the focus of future programmes offered by FET Colleges. SACPO is committed to the signing of the MoA with the SATN, and undertakes to continue supporting FET Colleges to strengthen their collaborations with UoTs in ensuring that South Africa benefits from HEIs. SACPO will continue to interact with the SATN in order to identify champions to be mandated to drive the process and further strengthen partnerships. There is a need for the SATN to consider inviting FET Colleges to be members of the SATN.
	Ms. Adrienne Bird **Acting DDG: Skills Development** **Department of Higher Education and Training**
	The following points were highlighted from the Minister's Speech: ▪ The agreement with the President to deliver more intermediate and high level skills in needed areas; ▪ The focus of UoTs of training technicians and technologists; ▪ Improving the progression pathways for artisans and all learners; ▪ Emphasising partnerships that provide clear incentives for all parties involved; ▪ The challenges of adequate funding, skilled human resources and improved research and development; and ▪ Improving industry links lecturers and WIL. Currently the learning pathways are premised on the notion of "parallel pathways". The thinking behind the "parallel pathways" is because of the following: ▪ Schools developing the ability of learners; ▪ The learners' ability is evidenced by school-leaving scores; ▪ The scores correctly group learners into ability groups; and

- The ability groups are then steered into ability-linked learning pathways as follows:

    - Universities that offer degrees;
    - Universities of Technology that offer diplomas;
    - FET Colleges that offer certificates; and
    - Learning on the job, in the formal or informal economy.

The above indicates that there are a few bridges and linkages across these pathways. Once a pathway is chosen, it becomes very difficult to change it. This is because there are theory thresholds that exist between these different pathways, viz:

- In the Professional Pathway, theory begins at a more fundamental level. Practice is postponed and permits more "abstract" fundamental solutions;
- In the Para-Professional Pathway, students learn different theory that leads to techniques and procedures to solve known problems; and
- In the Trade Pathway, students learn basic theory that supports basic techniques and procedures to solve familiar problems.

Historically, moving across these pathways has been difficult and has not allowed students to carry the credits already achieved.

The current HEQF offers qualifications on a full time basis, generally with no required work experiences, with the exception of WIL programmes. However, a different process was adopted in the past. In the past, there was a possibility of moving from an entrant field through to N1 and N6. The question is could this process not be relevant in the current era?

The following needs to be done differently:

- Identify and remove blockages to the scarce skills supply and find creative solutions to expand access and develop institutional forms that can raise the base and meet the demand for access for economic inclusion;
- Improve industry linkages to maximise WIL and work placements; and
- Understand that HEIs have limited capacity to absorb more students.

The progression route involves short part-time theory programmes that are aligned to workplace learning at each level. This also offers learners the option of working for a while and return part-time to upgrade their skills.

The following questions were posed:

- Should UoTs not explore the reintroduction and the revitalisation of the above route?
- What would the benefits be?
- Would the SATN be prepared to investigate, participate, design and implement such a scheme?
- Would there be enough workplace opportunities?

	Work placements could be made possible through the following: ▪ Striking a "social compact" between labour, business, social sectors and government; ▪ Financial incentives; ▪ Industry policy including investment incentives and compulsions; and ▪ Exploring a "virtual parastatal idea". The National Skills Development Strategy 3 Consultation Document proposes the introduction of PIVOTAL Grants that allows employers who pay a 1% levy fee to claim 40% by submitting a workplace skills plan to their relevant SETA. These employers can claim more if they absorb students from HEIs. UoTs are invited to submit suggestion regarding the above proposals. In the process of designing the new occupational curricula, there is a strong proposal to structure the knowledge of the N-courses, thus being a means of updating and regenerating the old system. The SATN needs to deliberate on whether this is a viable route to follow.
	Prof. Anthony Staak **Deputy Vice-Chancellor (Academic): CPUT**
	The development of high-level skills for the labour market has recently been emphasised, given the challenges of development in the country. This is needed in order to redress critical skills shortages to support economic growth, alleviate poverty and unemployment, hence initiatives such as ASGISA and JIPSA. The policies and strategies guided the thinking on high level skills development and defined the need to: ▪ Respond to labour market needs, focusing specifically on scarce skills areas; ▪ Support the growth and development needs of a modern economy and society at large; and ▪ Support knowledge production that responds to societal needs, supports innovation and reflects a shift towards mode 2 knowledge production. The following are inherent characteristics of mode 2 knowledge production: ▪ Responsiveness to societal needs; ▪ Knowledge production in the context of application and directed at societal problems; ▪ Transdisciplinarity and multidisciplinarity; ▪ Increasingly distributed knowledge; and ▪ Shifts towards the reconfiguration of existing knowledge and applying it in different contexts. The challenge facing HEIs is the production of graduates who can respond to the requirements of the market and contribute to the knowledge economy and

	operate in the mode 2 knowledge production. Thus, UoTs are well positioned to respond to the high level skills needs. The curriculum development process of UoTs is responsive to market demands, because UoT programmes have a strong career focus. UoTs are further well positioned to support mode 2 knowledge production through the following: ▪ Their focus on applied research directed at real world problems; ▪ Having no strong tradition of disciplinary research; ▪ Being able to promote a project based approach; ▪ Conduction research in multidisciplinary units/centres; ▪ Having infrastructure to support innovation and technology transfer; ▪ Having strong partnerships with industry; and ▪ Being fairly adept in knowledge reconfiguration. The current debate is whether UoTs must offer certificates in collaboration with FET Colleges, diplomas that respond to skills in the labour market or degrees for the knowledge production. Ultimately, the mission of each individual HEI will determine the balance or mix of offering these qualifications. Partnerships between Government, HEIs, Industry, SETAs and FET Colleges have an important role to play in high-level skills development at UoTs. HE is identifying a particular focus in the area of making a contribution to the development of their particular regions. The following are some of the curriculum challenges that UoTs are faced with: ▪ Determining the right Programme Qualification Mix (PQM); ▪ Developing appropriate articulation pathways; ▪ Promoting interdisciplinarity; ▪ Focusing on graduate attributes; ▪ Providing leadership in technology; and ▪ Focusing on innovation, entrepreneurship and technology transfer. UoTs are thus well positioned to contribute to the high level skill needs of the economy.
Discussion	**Q:** How can cooperation and articulation between UoTs, FET and SETAs be facilitated?
	Q: How can it be ensured that the graduates from UoTs have the required graduate qualities?
	Q: How can SETAs be involved in Work Integrated Learning?
	SIGNING OF MEMORANDUM OF AGREEMENT BETWEEN SATN AND SACPO
	The signing of the MoA between the SATN and the SACPO formalises the relationship already established and developed over the past two years. This will need champions to implement the initiatives contained in the MoA. There is a need for regular meetings to monitor the implementation of the agreement

	and to encourage the institutions to engage in the philosophy captured in the document.
	LAUNCHING OF SATN TECHNOLOGY DATABASE **Dr. Blessed Okole** **General Manager: Infrastructure and Planning - TIA**
	The SATN Technology Database is as a result of a collaboration between TIA, GTZ and the SATN, in an attempt to maximise the effective use of equipment of UoTs. This database will assist researchers, students and industries to share equipment available at UoTs. The following information is available on the template of the database: ▪ Location of the equipment; ▪ Contact person; ▪ Use of equipment; ▪ Model of equipment; and ▪ Cost of equipment and availability for use. The database can be accessed on following website: www.heda.co.za/satnsearchengine/formsa/
	COMMERCE AND INDUSTRY SUPPORT FOR TECHNOLOGICAL EDUCATION **Chair: Prof. Irene Moutlana** **Vice-Chancellor: VUT**
	Dr. Oswald Franks **CEO: Engineering Council of South Africa (ECSA)**
	UoTs are at the heart of leading economies and are partners in economic development. The links between technology education, productivity and economic growth have never been clearer. Thus, UoTs contribute to broader economic and social aspects of communities. Business leaders acknowledge the contribution made by UoTs in providing competitive advantage through the provision of: ▪ Highly skilled workers; ▪ Advanced technology; ▪ Cutting edge knowledge; and ▪ Innovation and practical know how. Business today is very mobile and follows environments that suit it. The following are key two factors that influence the location of a business: ▪ Access to specialised workers; and

	▪ Ability to benefit from knowledge spill overs from research, innovation and specialisation. There is a need for universities to increase their graduate output. A lot of work is being done in universities to improve the teaching methodologies to ensure the maximisation of the graduate output from the HE System. The national skills pipeline includes the following components: ▪ Schooling in Maths, Science and Engineering (MSE); ▪ Undergraduate training in HE; and ▪ Post graduate training in HE. The revolving nature between funders and institutions has evolved to that of a mutually beneficial relationship. Funders are willing to invest in institutions on the expectation that there will be an appropriate return on their investment. Mutually beneficial support initiatives could possibly yield the following positive results: ▪ Commissioned research; ▪ Technology station initiatives; ▪ Dual appointments; ▪ Secondment of staff to and from industry; ▪ Shared cost of capital intensive facilities; ▪ Structured training programmes; and ▪ More traditional support mechanisms. There is a compelling case for industry and commerce to support technological education. The key criteria by which potential funders decide whether or not to fund projects is due to the following: ▪ Return of investment; ▪ Mutual benefits that enhance sustainability; ▪ Link between the funding and improvement it makes; ▪ Transparency in governance and operations; and ▪ Engagement with communities. Successful universities are those that engage with the communities within which they operate.
	Mr. Braam Erasmus **Chief Process Engineer: Sasol**
	Sasol Technology Research and Development Division is currently active in the following areas: ▪ Coal processing; ▪ Fischer Tropsch Catalysis; ▪ Refinery and Chemicals Technology Research; ▪ Environmental Sciences and Technology;

	▪ Support services; ▪ Applied research; and ▪ Analytical technologies. Sasol Technology Research and Development Division has various and extensive external liaison with local and foreign universities, and various research institutions. The role of Sasol Technology Research and Development is to support technological education through: ▪ Employing technically qualified personnel; ▪ Partnering in training; and ▪ Partnering in research. In 2008, Sasol realised that there is no standard career ladder for technicians and technologists across all business units. This has hindered Sasol's ability to attract and retain high quality technicians and technologists. In this regard, an initiative was launched to establish formal career paths for such technicians and technologists. The envisaged outcomes for the project is amongst others to: ▪ Create attractive career prospects for UoT graduates; ▪ Create clear line of sight in terms of career prospects and requirements; ▪ Make transparent promotion and appointment criteria; ▪ Define differentiation between engineers, scientists, technicians and technologists; ▪ Encourage further technical studies other than managerial; and ▪ Grow the competency base of technicians and technologists. Sasol R & D sees itself as a partner of training. In this regard, in 2006, Sasol R & D introduced a "University Collaborative Initiative" for the following purposes: ▪ Establishing and maintaining a research and teaching capacity in South African Universities; ▪ Ensuring a supply of suitably trained science and engineering professionals, especially at post graduate and job entry levels; ▪ Maintaining and growing the academic expertise at universities; ▪ Assisting with the maintenance and establishment of enabling infrastructure for research in the chemical/chemical engineering fields; and ▪ Maximising the impact of funding by partnering with the DST, the NRF and other industry partners. Added to this, Sasol R & D implemented a "Hub and Spoke" Model aimed at creating critical mass skills in the following fields of research: ▪ Catalysis; ▪ Reactor engineering; ▪ Separations technologies; ▪ Coal processing;

	▪ Polymer science; ▪ Fuels research; ▪ Analytical technology; and ▪ Alternative energy. The stated aim of the above project is to grow diversity in the academic community, resulting in the project being a key factor in awarding funding. Sasol R& D actively seeks to leverage external knowledge by partnering with universities, research foundations, and other public and private institutions. Other Sasol initiatives of interest include the following: ▪ Skilltech; ▪ ChemCity; and ▪ Assisting SMME's.
	Dr. David Phaho **Group Executive: Manufacturing and Technology –** **Technology Innovation Agency (TIA)**
	The Organisation for Economic Cooperation and Development (OECD) outlined the following as the key elements for Sustained Economic Growth: ▪ Human Capital; ▪ Information and Communication Technology (ICT); ▪ Innovation; and ▪ Creating a vibrant Entrepreneurial Culture. The above factors are issues that relate to global power houses such as Sasol, the positioning of UoTs and Science Councils in South Africa. TIA's mandate is to move from research to the manufacturing of high value products and services, thus bridging the "innovation chasm" through local technology commercialisation and diffusion. TIA is a funded entity of the government, which aims at facilitating the commercialisation of research outputs for the value market. This is done within the rubric of strategic partnership with National Departments such as DHET, DTI, DOL, SETAs and other stakeholders such as GTZ, HEIs and Industrial Partners. The centrality of skills to TIA's Corporate Strategy is underpinned in the following sector-driven interventions: ▪ Investments into projects and firms; ▪ Technology Centres / Platforms; ▪ Centres of Competence; ▪ Public-Private Partnerships; and ▪ Programmes. TIA further aims at enhancing engineering and technical capabilities in the

	following technology innovation portfolios: ▪ Agro-processing, Plastics and Chemicals; ▪ Tooling and Metal Casting; ▪ Foundries; ▪ Renewable Energy Technologies; ▪ Advanced Light Materials and Electronics; ▪ Advanced Production Technologies; and ▪ Biotechnology. South Africa is facing skills shortages in critical areas. This is where the role of FET Colleges and UoTs plays a vital role. TIA will continuously engage with FET Colleges and UoTs to achieve the following: ▪ Continue with Industry Specific Internships at UoTs; ▪ Escalate SME Skills Development; and ▪ Orientate Technology Education Initiatives.
Discussion	**Q:** How would commerce and industry like to liaise with UoTs - should UoTs create special structures or do the existing consultative committees function well enough?
	Q: Do commerce and industry have sufficient input in the composition of curricula to produce graduates with the required qualities?
	Q: Is Work Integrated Learning supported by Commerce and Industry?
	CONFERENCE CLOSURE **Prof. Thandwa Mthembu** **Chairman of the SATN and Vice-Chancellor: CUT**
	Prof. Mthembu thanked the SATN Secretariat, Prof. Chris Jansen van Rensburg and Mrs. Christelle Venter, for the work they had done for the SATN. The theme of the conference was about HRD through partnerships. There was clear commitment to the cause of HRD and Skills Development. The SATN has achieved what it needed to in the conference. Prof. Mthembu thanked the speakers and participants who have made this possible. Prof. Mthembu acknowledged and thanked VUT, under the leadership of Prof. Moutlana, for hosting the conference and making it a success. The exhibitions have resulted in MoUs and partnerships being signed and reached. Prof. Mthembu thanked Prof. Louw, Prof. de Beer and Dr. Johnson and their team for the exhibitions. The elluminate technology is being used to conduct a number of meetings of the task teams and thus helping the SATN to save funds. Over the last two conferences, teaching and learning issues have not been mentioned, by the session on curriculum particularly focused on curriculum

	issues. The following challenges were identified in order to give a sense of continuity from this conference to the next one: ▪ Knowledge base; ▪ Innovation chasm; and ▪ Unemployment. The SATN has established research groups in the number of key areas which were identified. The SATN will pull together its resources in order to address the above. It is important that the research group should come together and build proposals and research projects around these areas. In the area of skills development, the challenge is a lack of critical skills that could contribute to the betterment of the country. A project based approach on how to engage with the FET Colleges and the SETAs should be developed. The issue of WIL, the relationship with the SETAs should assist UoTs on how to fund WIL. Prof. Mthembu challenged SATN's WIL Committee to set up a very focused task team on skills because there is a lot of policy development taking place around skills. UoTs can help to improve economic development in the country. The DST has a programme designed on how the national innovation system could be cascaded down to regions, to produce innovation strategies. UoTs will continue working towards finding a strategy to help facilitate the process in the transfer of knowledge for socio economic development.
	CLOSURE
	The second day of the conference and the conference was concluded at 13:45.