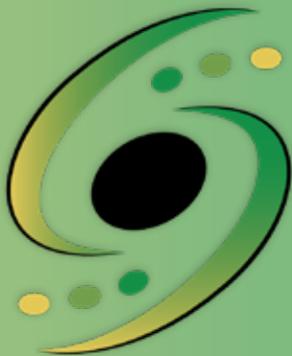


THENSA STATEMENT ON

University, Business & Partnerships:
A Driver for 4IR Solutions Post COVID19

16 - 18 MARCH 2022



THENSA

Technological Higher Education Network South Africa



Tshwane University
of Technology

1. BACKGROUND

The Technological Higher Education Network of South Africa (THENSA) and the delegates of the Conference titled “University, Business and Partnerships: A Driver for 4IR Solutions Post COVID19” held at Monte Casino Conference Centre from 16-18 March 2022, hereby acknowledges:

- ✱ That the establishment of the Presidential Commission on the Fourth Industrial Revolution (4IR) is an affirmation of Government’s commitment to embracing new technologies and using them to address societal challenges while simultaneously seizing the opportunity to improve the lives of South Africans.
- ✱ Government’s vision that South Africa will have a globally competitive, inclusive, and shared economy with the technological capability and production capacity that is driven by people harnessing the 4IR to propel the country forward towards its social and economic goals.
- ✱ The role of Universities, Research institutions and South Africa’s collaborative international partnerships in meeting the challenges presented by the 4IR especially Post Covid19.

2. THENSA STATEMENTS AND RECOMMENDATIONS

Based on the proceedings and deliberations of the Conference, THENSA presents the following sets of Statements and Recommendations in alignment with the themes of the Conference:

THEME 1: The Role of Universities in disseminating 4IR Information

Statements:

- ✿ It is critical that HE carefully considers all dimensions of curricula relating to the 4IR. It should take into account (i) the embedding of quality assurance; (ii) the nexus between artificial and emotional intelligence in planning and implementing the curriculum; and (iii) the potential for innovation through use of 4IR technologies including, big data, machine learning, 3-D printing, artificial intelligence, virtual and augmented reality, etc.
- ✿ Entrepreneurship education must commence in the first year of study.
- ✿ WIL modalities in the curriculum needs to be reviewed in line with 4IR

Recommendations:

- ✿ Universities should be vigilant about the new professions that may emerge as the 4IR and the 5IR develop and prepare curricular and qualifications and a workforce to populate the industries that will result.
- ✿ DHET, CHE and SAQA must rethink the bureaucracies around its systems of evaluations to ensure that the processes are more enabling and assist in responding to the Human Resource needs of the country at large.
- ✿ The administrative systems used by universities should be revised to ensure a swift response to the teaching, learning and research needs of students and researchers.
- ✿ Quality assurance structures such as the QCTO, SAQA and CHE should provide direction in developing a system that will meet the needs of all entities and on how such a system could work efficiently and effectively in meeting the needs of the sector.
- ✿ A diverse range of programmes and affordable education responsive to community needs, the world of work and that considers the skills and attributes that we would need in the next 10 years should be developed.
- ✿ The relationship between TVET colleges and universities should be strengthened as well as developing a continental qualifications framework.
- ✿ THENSA must lead the charge for a continent-wide colloquium with the various HE consortia on the continent to explore the possibility of a Continental Qualifications Framework.

THEME 2: Exploring New Frontiers – A Giant Leap for Mankind

Statements:

- ✱ In order to actively advance new research frontiers through 4IR, Universities must actively ensure the capability of the workforce that it prepares for the future world of work and ensure a conducive learning environment for this purpose.
- ✱ Technological innovations, such as the space science programmes, must be made sustainable.
- ✱ Universities must constantly ensure the relevance of its curricula and be alert to the needs of new industries and business opportunities that will require human capabilities for such businesses and industry.
- ✱ The establishment of science parks and collaboration amongst the science parks in SA and the international science parks, will have mutual benefit and contribute to joint innovations etc.

Recommendations:

- ✱ Universities must promote and encourage Inter- and trans-disciplinary initiatives nationally and internationally.
- ✱ The THENSA Science Park Clusters must collaborate both locally, as well as internationally for mutually beneficial outcomes and outputs. The value of such collaboration was highlighted during the pandemic in the manufacture of vaccines, ventilators, masks and other equipment to prevent and protect our citizens.
- ✱ Attention must be given to the setting up of innovation hubs at universities.
- ✱ The formal Partnerships between Science Parks locally and internationally must be forged and formalised.
- ✱ Space science, and careers for the future world of work and similar exciting areas developing in South Africa, should be used to attract and retain young people in the country.
- ✱ Universities should actively collaborate with other institutions regionally and nationally to increase capacity in the value chain, increase skills and retain young graduates with the necessary skills.

THEME 3: Curriculum and Innovation for the 4IR

Statements:

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- ✿ The relationship between TVET colleges and universities should be strengthened as well as developing a continental qualifications framework.
- ✿ THENSA must lead the charge for a continent-wide colloquium with the various HE consortia on the continent to explore the possibility of a Continental Qualifications Framework.

THEME 4: University, Business, Industry Partnerships in the 4IR – Social Compact for Success Post-Covid19

Statements:

- ✳ The Launch of Work Integrated Learning South Africa (WILSA) is a positive way forward to ensure that the key dimensions for successful partnerships namely, communication, commitment and compatibility, clear expectations, trust, and reciprocity are addressed and formalised.
- ✳ Through WILSA, collaborative research between universities and business and industry would ensure the currency and relevance of the curriculum and its potential for application through the incorporation of 4IR technologies, will be possible.
- ✳ The establishment of WILSA is a positive direction for THENSA Member institutions to work as a collective in ensuring that WIL programmes and modalities are reviewed to adapt to the 4IR requirements.
- ✳ WILSA must ensure that staff are adequately capacitated to train students for the world of work.
- ✳ Industry participation in curriculum development and review of curricula are critical to ensure that students are prepared to “hit the road running” when they enter the job market after qualifying from their respective institutions.
- ✳ Collaboration between Science Parks (University and Business) both locally and internationally to promote joint innovations.

Recommendations:

- ✳ Emerging WIL models that include all stakeholders across the HE and business and industry spectrum must be vigorously pursued.
- ✳ THENSA as a partner organisation of WACE, must utilise the international training modalities and programmes for both staff and students to ensure that students are work ready at time of graduation from institutions.
- ✳ The urgent need for capacity building programmes for WIL Coordinators and Directors should be implemented with urgency.
- ✳ Given the critical importance that WIL plays in the training of students within the THENSA consortium, THENSA together with SAQA must consider the establishment of a Professional Body for registration of WIL Coordinators and Directors and ensure that they receive ongoing training as Industry requires.

THEME 5: Exploring New Frontiers – Tourism in the 4IR Post-Covid19

Statements:

- ✱ Tourism has been negatively impacted upon due to Covid19.
- ✱ It is necessary to develop solutions for the short-term, as well as develop strategies for the long term.
- ✱ Many opportunities exist for the tourism industry to flourish and grow the economy of the country.
- ✱ Lessons can be learnt from the Irish Tourism Education Gateway (TEG) programme
- ✱ Reviewing curriculum and qualifications and training, innovations in tourism studies and the impact of 4IR on tourism studies needs urgent attention.

Recommendations:

- ✱ The change in the tourism industry post-COVID-19, must be fully assessed to explore how the curriculum should be revised in order to harness the advantages offered through the use of 4IR technologies.
- ✱ A partnership with the Irish Tourism Education Gateway (TEG) programme must be forged in partnership with THENSA, the South African Department of Tourism and the Tourism Industry partners to establish a TEG in South Africa to support the tourism industries.
- ✱ Government must be encouraged to partner with THENSA Tourism Research and Training Cluster and to ensure that resources required to support the changing tourism landscape be given urgent consideration.
- ✱ THENSA and its member Institutions must play an active and coordinated role in developing upskilling programmes for the industry to meet the challenges of the 4IR

THEME 6: Climate Change and the 4IR

Statements:

- ✿ There is compelling scientific evidence that climate change is occurring at an unprecedented rate and that Climate Action is needed now from all sectors of society including higher education.
- ✿ The global effort from all countries in terms of the contributions to the Paris Agreement and to avoid catastrophic climate impacts, is not sufficient.
- ✿ SA is not completely on track to meet its climate mitigation contributions.
- ✿ Universities in particular have not given attention to climate change and the impact their operations have had on climate change, namely, recycling, use of renewable energy to support its energy needs, the circular economy, and its value to both environment and job creation, curriculum review and future jobs in respect of climate change etc.
- ✿ There is a need for increased international collaboration for funding for innovation, infrastructure, technology transfer, and institutional development.
- ✿ There is a need for skills and enterprise development which should incorporate all 4IR technologies to address climate change while simultaneously enhancing business development and entrepreneurship.
- ✿ Solutions to climate change should be driven by inclusivity. Climate and social justice must be viewed as inter-related issues, working towards, a decarbonization pathway that will be just, equitable and inclusive.
- ✿ Our institutions must be able to produce the skills we need to support a green economy. Efforts to decarbonize locally and internationally and use 4IR technologies for these activities must be accelerated so that we are in harmony with nature for sustainable development.
- ✿ SA to be prepared for the implications of the global and geo-political conflicts that may affect SA in terms of energy security. We need to relook at a low carbon development path for SA that is sustainable and affordable. tourism landscape be given urgent consideration.

Recommendations:

- ✿ Leadership at universities need to drive a coordinated effort to communicate the importance of climate change and put forward a communication strategy/policy to ensure all stakeholders in the sector commit to driving the climate justice initiatives and activities.
- ✿ Given that HE has not adequately incorporated Climate Change or the Green Agenda in its curriculum, its policies, the various dimensions in climate science needs to be revisited to ensure that the curriculum content is current and relevant.
- ✿ The student movement should play an integral role in these activities.
- ✿ An effort should be made across the sector to increase the number of postgraduate students in the area of climate change. A model for Post Graduate studies should be developed to bring together the best expertise to deliver a shared curriculum for all universities.
- ✿ A robust communication strategy that seeks to advance synergies among HE, Business and Industry, Government and Civil Society has to be developed to converge on areas of mutual collaboration, viz., policies, funding, intersectional co-operation, knowledge and innovation, and platforms for more robust discourse and debate.
- ✿ New synergies need to be forged between industry and science institutions for the applied use of 4IR technologies, e.g., satellite imagery for climate impacts and weather predictions, flood events, early warning systems and remote sensing.
- ✿ Research and development in the use of drone technologies, renewable energy technologies, wastewater treatment, waste to energy conversion, the circular economy, alternative energies, biohydrogen technologies, automation, food security, climate proofing, just transition, big data analytics to encourage environmentally friendly decision-making and must be actively pursued.
- ✿ A water and sanitation master plan for South Africa should be developed in collaboration with key players in the National System of Innovation and innovations in this regard should be piloted at universities.

3. CONCLUDING REMARKS

The Fourth Industrial Revolution offers prospects for South Africa and its global partners to revolutionise its teaching and learning sectors, its research and innovation sector, its public and private sector amongst others, in a way that will benefit all. The THENSA Statements and Recommendations on 4IR in Higher Education outlines these prospects.

It is expected that 4IR solutions and policy recommendations made in this statement will be afforded due consideration and implementation thereof by the respective higher education and research institutions, government organisations, business and industry, and civil society organisations.

It is also of vital importance that activities, projects and programmes must be developed and implemented within realistic timeframes so that no one is “left behind “as we catch up with 4IR and move towards the 5IR and beyond.

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